TOOL DIE MACHINE PROGRESS

THE NATIONAL TOOL AND DIE JOURNAL

TOOLS, DIES, JIGS, FIXTURES, MOULDS, GAGES, MACHINES
Design and Engineering
PRECISION SPECIALTIES
STAMPING and PARTS PRODUCTION
Official Publication
Special Tool, Die & Machine Shop Industry

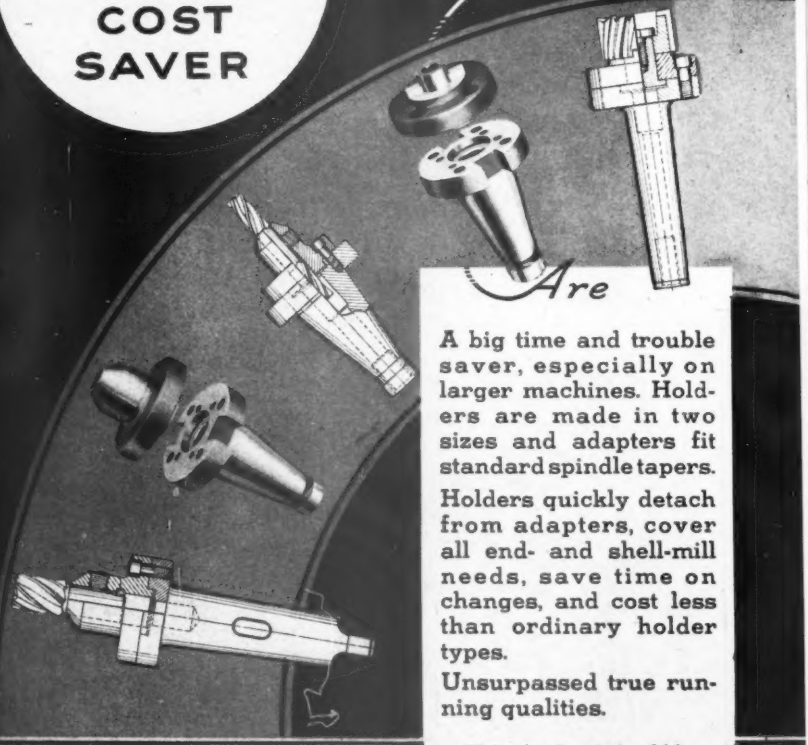
OCTOBER, 1937

Circulation more than 10,000

G. A. RICHIE
425 Chamber of Commerce Bldg., Indianapolis, Indiana

Another WELDON COST SAVER

WELDON TOOL HOLDERS AND ADAPTERS



Are

A big time and trouble saver, especially on larger machines. Holders are made in two sizes and adapters fit standard spindle tapers.

Holders quickly detach from adapters, cover all end- and shell-mill needs, save time on changes, and cost less than ordinary holder types.

Unsurpassed true running qualities.

Write for descriptive folder.

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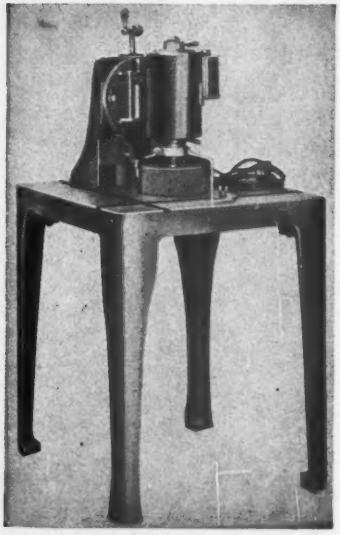
321 FRANKFORT AVE.
CLEVELAND, OHIO

"Pioneers in Fast Spiral Double end End-Mills"

Time-wasting Special Set-ups for grinding unusual contours and difficult shapes are not needed . . . if your equipment includes: **GRINDRITE**

(Patented)

"No other grinder on the market to compare with them in the quality of the work they turn out," writes McKinney Tool & Mfg. Company of Cleveland.



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2 GRINDRITE MODELS

THE HEAVY DUTY—A rugged floor type which has proven itself indispensable in many shops where heavy grinding quickly and accurately done is a necessity.

THE JUNIOR MODEL—A portable bench type grinder which uses either grinding wheels or mounted "pencil sticks." Built-in diamond dresser makes truing and dressing simple.

Pivot action permits easy grinding of die clearance and similar angle surfaces. Toggle action mechanism quickly lifts wheel clear of work. Graduated scale facilitates accurate angle settings.

Descriptive circular and list of users upon request.

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NO DIES TOO LARGE FOR OUR FACILITIES

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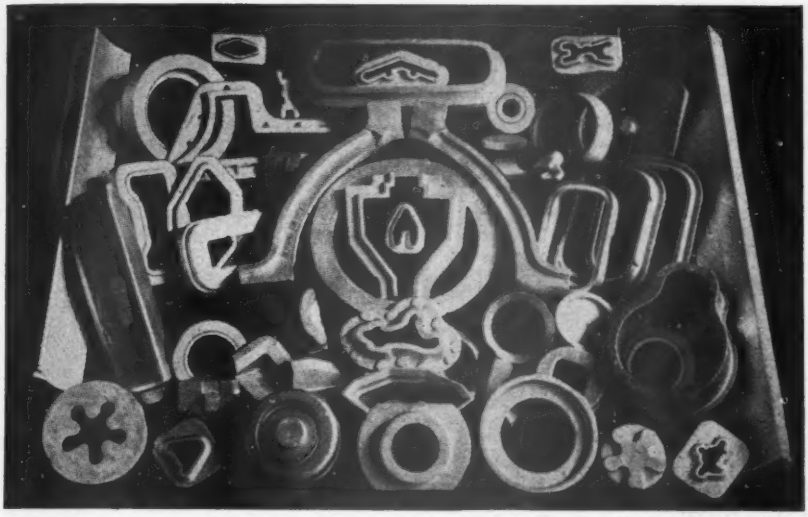

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FCC Dies and Tools of air or oil hardened tool steel, can be cast to shape within 1/8 inch of finished size, even on the most intricate shapes. The great saving in machining time is important on your rush jobs —and highly profitable on *all* jobs. These unusually hard, wear-resistant alloy steels also give you longer service and still more savings.

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They are recommended for all kinds and sizes of blanking, forming and drawing dies and for many other purposes.

Write for the FCC book, detailing special analyses, properties and applications and other useful data.

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PROGRESS
THE NATIONAL TOOL AND DIE JOURNAL

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Published in the interest of Manufacturers and Users of
CUSTOM-BUILT TOOLS, DIES, MACHINES AND ACCESSORIES

GEORGE J. HUEBNER . . . *Publisher and Editor*
215 Fairmount-Cedar Bldg. - Cleveland, O.

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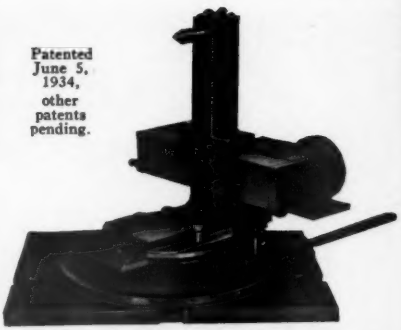
Patented June 5, 1934, other patents pending.



THE VINCO ANGLE TANGENT TO RADIUS DRESSER

For Internal, External and Surface Grinding Machines

The Vinco Angle Tangent to Radius Dresser, with its basic patented feature of dressing angles and radii from the same axis without moving the diamond, has revolutionized the dressing of angles and radii tangent on abrasive wheels. It saves 75% in dressing costs and eliminates all worry and uncertainty. It is precision made and guaranteed to be satisfactory.

Send for Descriptive Circular.

VINCO TOOL COMPANY
7352 Central Ave. Detroit, Michigan

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Saves Hours of Set-up Time
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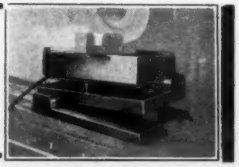
Accurate to Precision Limits

The MAGNA-SINE
A Magnetic Sine Table Adjustable to
ANY DESIRED GRINDING POSITION
ROBBINS ENGINEERING CO.
637 Mt. Elliott Ave. Detroit, Mich.



"MAIN STREET... MY FOOT"
That's exactly what Bill
lathes like this
may or may not have the
about company purchases
. . . production line No. 4 . . .
said before he saw the book.
Above you see Bill, comfortably
seated at the general foreman's
desk, reading rhymes about . . .
of all things . . . lathes and getting
a bookful of lathe "low-downs"
that intrigued, surprized, fasci-
nated Bill to ponder: "Why the----
hasn't someone talked about
he knows his lathes outside-in
and inside-out. Even hard-boiled
Bill admits that "What Makes
Main Street," not only gave him
a better conception of his job . . .
but an entirely new "lathe's-eye"
view of his own particular niche
in the parade of production.
"What Makes Main Street" . . . isn't written for just the Bills of the production line. It's written for everybody from the boss to the apprentice. It's a shop book for shop-minded men who spell PROFIT—p-r-o-f-i-t-m-a-k-e-s. An interesting book . . . a colorful book . . . a downright valuable book. You get a copy, via the coupon, for a quarter of a dollar. It's worth it.
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Cincinnati, Ohio. Dept. M-1
Here's my quarter . . . send the book.
Name
Address (or Co.)
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What makes Main Street?
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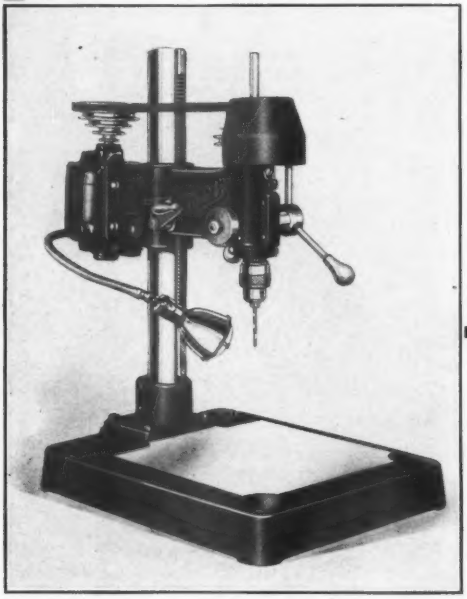
ANNOUNCING the new "Buffalo" No. 15 MANUFACTURING DRILL



★ ★ ★

● In announcing this new drill, "Buffalo" leads again in making a drill to fit modern manufacturing needs. It offers all the advantages of the rugged low cost No. 15 drill plus new features to give quicker change of set-up, correct take-up for wear, and adequate room for handling jigs and work pieces. Easier to operate. Least non-production time.

Drill is full ball bearing type. Has 5 speeds. Pulleys designed to carry the full capacity of standard "A" section V Belts. Table base is 18" x 22" with 14" x 14" true plane-working surface.

No detail has been overlooked to make the new "Buffalo" No. 15 Manufacturing Drill the finest in its class on the market.

Write today for full details and prices.

BUFFALO FORGE COMPANY

477 Broadway BUFFALO, N. Y.

Branch Engineering Offices In Principal Cities

In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

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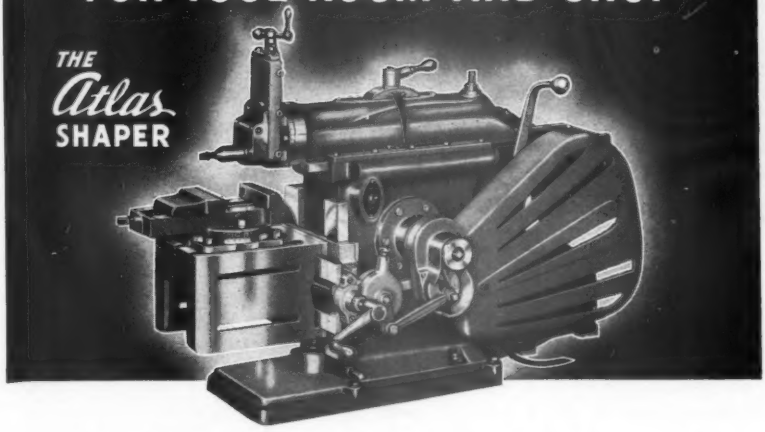
Atlas ANNOUNCES A MODERN PRECISION 7" SHAPER FOR TOOL ROOM AND SHOP



How often in your tool room and shop have you wanted and needed a handy bench shaper, quickly and easily adjusted to shape up a part in a hurry and let you get on with your job with a minimum of fuss and bother? Atlas now provides such a tool in this new 7" Shaper.

Our creative engineers — and they deserve this pat on the back — have done a marvelous piece of work in designing this new machine tool. They've given it the precision, power, and rugged strength of its big brothers, the versatility, the range in speeds, in fact everything you expect to find in a dependable shaper, built down to scale for greater efficiency on small work. And they've done it at a price that sets a new standard of value in metal shapers plus the economy of a half horse-power motor.

Here are just a few performance details. The stroke, of course goes up to 7". The drive is standard bull gear type powered by V-belts from motor to spindle. 4-step countershaft and pinion-shaft pulleys produce 4 speeds between 45 and 200 strokes a minute. Five surface feeds in either direction range from .005 to .025 inches per stroke. The tool post swivel is graduated up to 50° both ways and the base of the vise can be swiveled and locked the full 180°.

You'll find many ways to put this new Atlas Shaper profitably at work in your tool room and shop. Write today for complete specifications.

ATLAS PRESS CO., 1012 N. Pitcher Street Kalamazoo, Michigan

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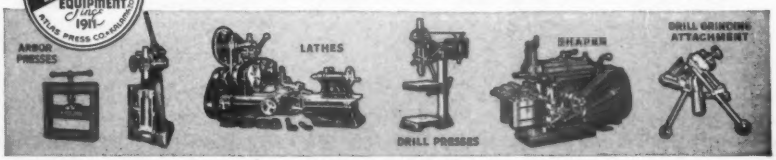
NEW YORK—130 W. 42nd St. PHILADELPHIA—113 N. 3rd St.



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MANUFACTURERS SPECIAL MACHINERY - PARTS - MACHINE REBUILDING

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Reasons WHY DOALL Is Recommended for Die Making

1. No "dead cycle" as in "jig saw" or hand sawing. Hence, 100% cutting efficiency instead of intermittent 25% cutting.
2. Entire length of the saw is used, while with a hack saw or reciprocating machine you use only the middle area of the saws.
3. No "drag back" to dull the cutting edge of the saws. It is well known that the drag on the back stroke dulls the files and saws quickest.
4. Steady flow of cutting provides for ease in following a line, simplicity in operation and greater efficiency.
5. The Doall combines, in one machine, various widths of saws, files and polishing bands.
6. The metal cutting band saws will cut the toughest high chrome, high carbon steels.
7. Work thickness capacity is 8". A 24"x34" work table is available with 30" throat depth.
8. These same band saws will cut other materials, such as aluminum, brass, bakelite, rubber, cork, hard wood, etc.

"We just finished up a set of dies in three days that ordinarily we would feel that we were fortunate if they were through the die shop in three weeks."

Mr. C. E. Erickson, President, C. E. Erickson Company, Des Moines, Iowa.

"We have two machines in constant use and find on some of our complicated Grille dies we can saw them out in about one fifth of the time, with less filing and a straighter die wall."

Mr. Leroy E. Dahlberg, Crowe Nameplate and Manufacturing Co.

"It has been our experience in making irregular shaped dies that the sawing and filing method has practically eliminated the slotter or internal shaping method."

Mr. B. G. Tang, General Electric Co.

"Files are a money saver with their continuous downward stroke, making it possible for us to work much closer to a line than by the old fashioned double stroke method utilized in the conventional filing machines used by us in the past."

Mr. H. Koester, Works Manager, The Bristol Company, Waterbury, Conn.

CONTINENTAL MACHINE SPECIALTIES, INC.

1301 Washington Avenue S.
Minneapolis, Minnesota

Our factory representative near you will demonstrate Doall in your plant and on your work—no obligation.

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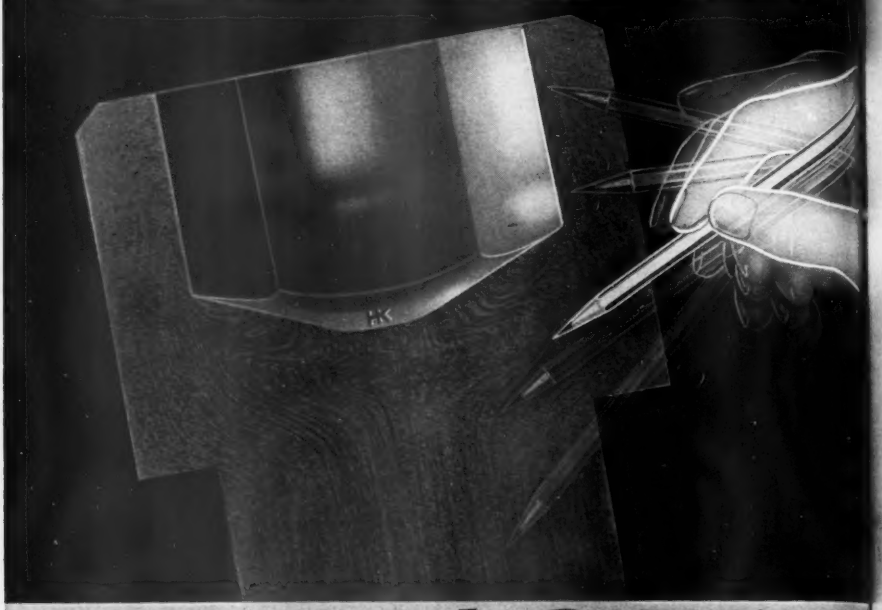
FIBRO FORGED SOCKET SCREWS
ARE STRONGER – THEY HAVE CONTINUOUS FIBRES



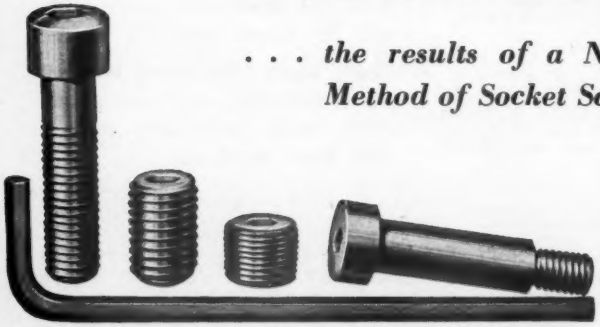
HOLO-KROME

FIBRO FORGED

TRADE MARK

Socket Screws

. . . the results of a NEW and BETTER Method of Socket Screw Manufacturing



SOCKET HEAD CAP SCREWS—HOLLOW SET SCREWS
SOCKET HEAD STRIPPER BOLTS—HOLLOW PIPE PLUGS

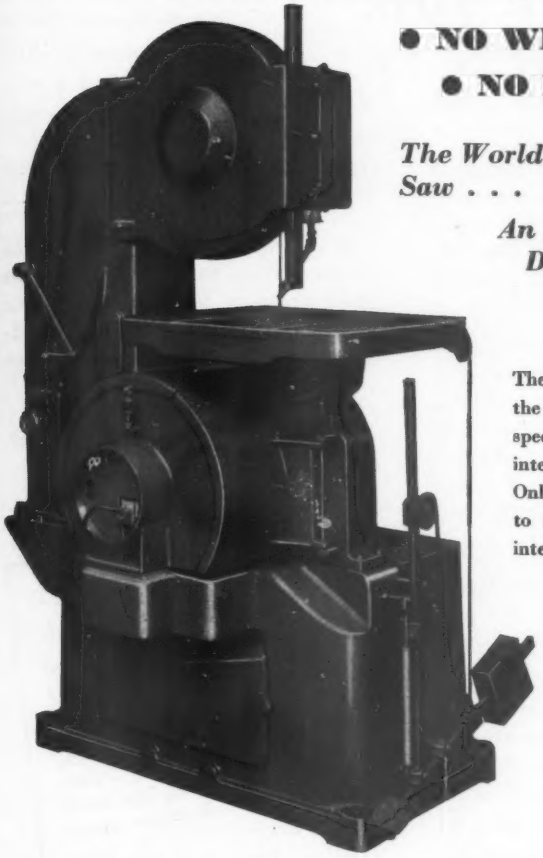
FREE TEST OFFER

Enough Screws for an adequate test—state style, size, etc. Write Dept. "B"

THE HOLO-KROME SCREW CORP., HARTFORD, CONN., U. S. A.

OPEN END BAND SAW

For Internal and External Sawing



- **NO WELDING**
- **NO BRAZING**

The World's Best Die Band Saw . . .

An Achievement in Die Making

The outstanding feature of the open end band saw is the speed and ease with which internal sawing can be done. Only 20 seconds are required to set up this machine for internal sawing.

THE positive drive naturally provides faster cutting than a friction drive.

The Grob Open End Band Saw has proven to be equally well adapted on very small and delicate die work as well as on large and heavy work. The time for brazing the saw band for internal work is eliminated. Smooth cutting at all times is assured, since there is no bump such as is caused by a brazed part. For this reason the face of the saw band can be used as if it were a file, and the work can be finished to within .002-inch to the line.

GROB BROTHERS, ***Grafton, Wisconsin, U. S. A.***

Originators of Continuous Motion Filing Machines, Open End Band Saws and Velocity Action Briquetting Machines

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We want you to do the job, BUNELL

Some time ago we built three large sheet metal dies for a representative manufacturer of household appliances. His plant was more than 500 miles distant from ours — that is important.

We carefully studied the drawings. The dies were of conventional design and to be built accordingly. However, from our experience we realized that several design changes would greatly improve their functioning, lengthen their life and produce much better stampings.

Our customer authorized the changes, we built the dies. The performance was perfect. Everyone was pleased.

Time marched on. It was time for new models. The dies were in excellent condition — a few changes to produce the new design, then resharpening and they were ready to go again.

But when we received the request to do the job, we had a full schedule for weeks ahead. We suggested that the changes could be made and the grinding done nearer home but the customer insisted that we must find a way to serve him. And we did. He paid the freight both ways on almost 40 tons of steel and iron. . . .

Why? Because we had built into his dies SOMETHING MORE than the customary elements and parts and thereby had succeeded in building up a customer's confidence which is priceless.

We try to do that on every job entrusted to us.

PUT YOUR DISCARDED DIES BACK TO WORK

We have developed a method for repairing and reclaiming the worn edges of dies, punches and tools without annealing. No drawing of temper—No rehardening. New edges compare favorably with high speed steel. The cost is small—savings are high.

Let us show you!

The BUNELL MACHINE & TOOL CO.

1600 EAST 24th ST. • *Phone PRospect 2681* • CLEVELAND, OHIO

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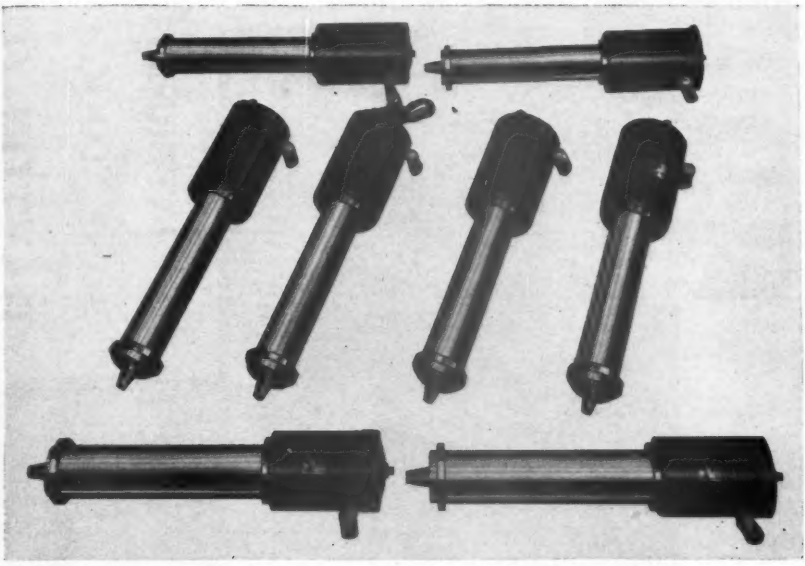
10 PARKER MOTORIZED SPINDLES SPECIFIED BY DODGE BROTHERS AS EQUIPMENT ON 10 FITCHBURG GRINDERS



★ Parker Motorized Grinding Spindles, with their Parker 4-Point Contact Bearings, are regularly specified by the Dodge Division of the Chrysler Corporation because day in and day out they deliver such remarkable, trouble-free precision grinder service.

The 8 spindles of varying sizes illustrated were specially designed for new Fitchburg Grinders and are being used for grinding spiral spline shafts.

WRITE FOR DESCRIPTIVE MATTER AND PRICES

Parker Hi-Speed Spindles are available for change-over of belt-driven grinding machines. They greatly improve their performance.

MAJESTIC TOOL & MANUFACTURING CO.

2948 WOODBRIDGE STREET, E. DETROIT, MICHIGAN

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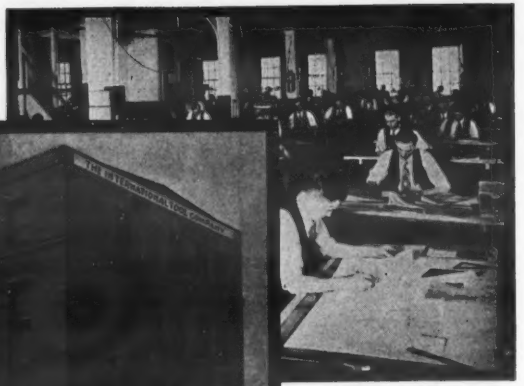
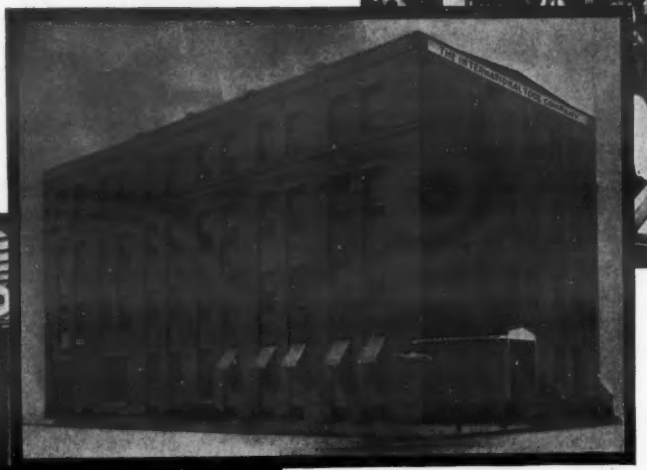
PRODUCTS
Reg. U.S. Pat. Off.





THE
INTERNATIONAL
TOOL COMPANY
J. J. KOHL
Pres.
DAYTON, OHIO

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A THOUGHT

An HONEST STATEMENT or opinion, based on MATURE JUDGMENT and EXPERIENCE including a critical analysis of essential considerations, is MUCH MORE TO BE DESIRED than a SUPERFICIAL PROMISE intended to curry favor.

TOOL and DIE ESTIMATES made haphazardly, without detailed analyses of all cost and risk elements and not backed up by judgment and practical experience, and DELIVERY PROMISES promiscuously given, VERY OFTEN lead to disappointment and trouble.

"INTERNATIONAL" representatives are practical tool men, selected for their designing ability as well as their shop experience and knowledge.

Theirs is the job of dealing faithfully and fairly with customers' requirements.

They can be trusted to apply to your tool and die needs the careful attention which they deserve.

ITCO PRODUCTS
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Our Specialty—
JIG,
FIXTURE,
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GAGE
MACHINE DESIGNING
—o—
COMPLETE
TOOL ROOM
and
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EQUIPMENT
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WOOD and METAL
PATTERNS

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Adjustable While Running!

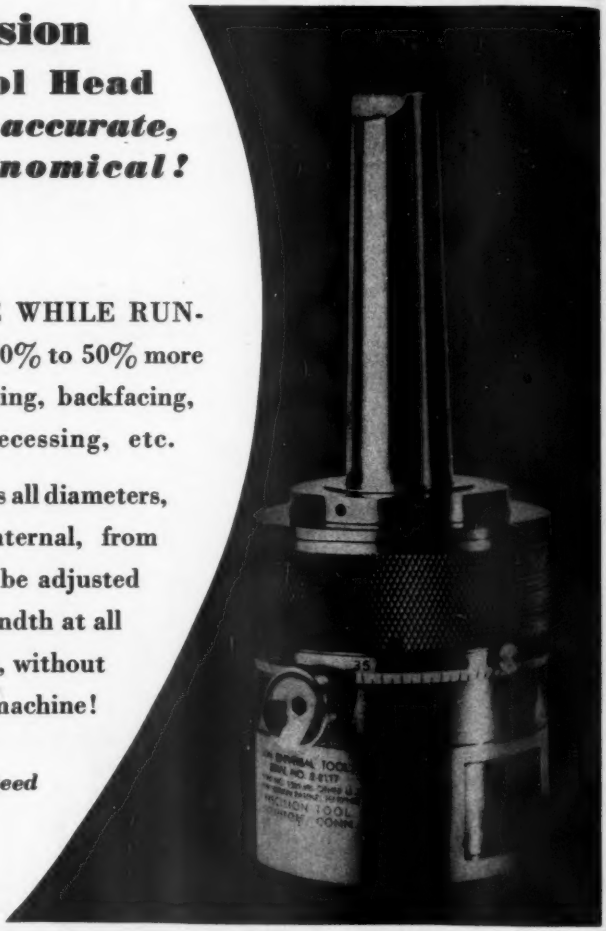
The Precision Universal Tool Head *is faster, more accurate, and more economical!*

•

Being "ADJUSTABLE WHILE RUNNING," it saves from 20% to 50% more time while boring, facing, backfacing, turning, trepanning, recessing, etc.

One compact size handles all diameters, both external and internal, from 1/16″ to 16″, and can be adjusted to a fraction of a thousandth at all times, and at all speeds, without stopping either tool or machine!

Unconditionally guaranteed for one year!



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THE PRECISION TOOL COMPANY

BRIDGEPORT, CONN.

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Tool • Die • Machine **PROGRESS**

The National Tool and Die Journal

October, 1937 Vol. 3, No. 7

Two Letters of Appreciation

LAST month in our editorial, "The Tool is Almost a Living Thing, Inviting, Inspiring....," we quoted from an address of W. J. Cameron of the Ford Motor Company before a meeting of the National Machine Tool Builders' Association because he expressed so eloquently the ideas we have had for years about modern machines and tools and the men who design and build them. So many TDM shop products are designed for and used in conjunction with these Machine Tools, which are produced by members of the Association, that we proudly share with them, as well as with all builders of Special Tools, Dies and Machines everywhere, two letters which comment on our editorial. We hope that the sentiments expressed will arouse in the minds of both makers and users an even greater respect for the ingenuity and fine precision handiwork which must, of necessity, enter into the construction of fine tools and machines.

GEORGE J. HUEBNER, *Editor*

NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION
10525 Carnegie Avenue Cleveland, Ohio

October 4, 1937

Mr. George J. Huebner, Editor
Tool-Die-Machine PROGRESS
215 Fairmount-Cedar Bldg.
Cleveland, Ohio

My dear Mr. Huebner:

In your September issue you make a very admirable use of the extract of Mr. Cameron's address before our convention last spring, and we extend our congratulations. These few paragraphs are the very heart of Mr. Cameron's talk, and we have always felt that they did not receive half enough publicity. You have done for us what we have long been wondering how to do ourselves.

You will see from this that we do read your magazine and appreciate being kept on the mailing list for it.

Sincerely yours,
Frida F. Selbert
Secretary

MEC

« »

CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA
WASHINGTON

October 6, 1937

Mr. George J. Huebner, Editor
215 Fairmount-Cedar Building,
Cleveland, Ohio.

Dear Mr. Huebner:

On returning from vacation, I find a copy of the September issue of Tool-Die-Machine PROGRESS, which has come to the Chamber marked for my attention.

May I say that to me this is a very interesting publication and, if you can do so consistently, I hope that you will arrange for me to receive subsequent issues. In the current issue, I was particularly impressed with the editorial appearing on page 9. The views which you there express will undoubtedly be somewhat novel to many and worthy of serious thought, particularly at a time when there seems to be a strong inclination to overlook the importance of industry and of the products of industry to the public welfare.

Yours very truly,
HENRY P. FOWLER,
Acting Manager,
Dept. of Manufacture.

267/619

Automatic Screw and Chucking Machines Are Important Factors In Present-Day High Production.

IN no other country of the world are so many persons privileged to enjoy the "wonder products" of modern Industry as in the U.S.A. It is made possible by the balance which is maintained between the incomes of a large percentage of its citizens and the selling prices of these products.

Although there are numerous factors which contribute, either directly or indirectly, to this very desirable state of affairs, there is one which is outstanding. It is precision manufacture in large quantities, resulting in complete interchangeability of parts, which has contributed so much to lowering of costs.

When Eli Whitney back in 1798 conceived of the very first jigs and fixtures, and designed and built them for the duplicate production of the parts of some 10,000 muskets for which the U. S. Government had given him an order, he started us off on the principle of interchangeable manufacture. And think of where we are today. It is commonplace to measure in ten-thousandths of an inch and possible even in millionths.

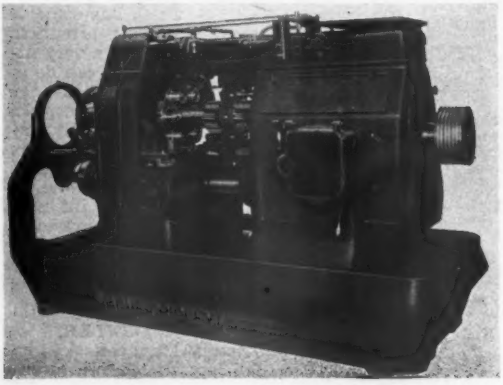
To manufacture his muskets, Whitney had to begin from the ground up, or shall we say from the water up, because it is a matter of history that he had to first develop a water power site to produce the needed power. Machines and tools came next and with them the modern manufacturing system was born.

American Industry has carried on with great credit to itself. Tools and dies as they are designed and built today fabricate, shape, form and draw metal into parts and products of unbelievable accuracy and the machine tools with which they are used have been developed to the point of what would seem to be peak precision and maximum quantity production.

These machine tools readily fall into two groups—standard and special, and each of these again into the so-called manual type and the automatic.

The production of screw machine parts was one of the first successes achieved in automatic manufacture. It was in the early 1890's in Hartford, Conn., that E. C. Henn designed and built a multiple spindle machine in an attempt to speed up the production of screws. Joined by his brother, A. W. Henn of Cleveland, The Acme Machine Screw Company was organized. A consolidation with the National Manufacturing Company, a few years later, developed into the present National Acme Company, manufacturers of the well-known Gridley automatic screw machine and the more recent automatic chucking machine.

For manufacturers whose products are built up of stampings and fabricated



Acme-Gridley Standard 6 Spindle Automatic Screw Machine. Design Assures Great Rigidity Under Heavy Forming Cuts.

Tooling For Numerous Parts Fabricated Is Important Source of Business For TDM Shops.

parts and which require screw machine parts for assemblies, Gridley 4 and 6 Spindle Automatics are real cost reducers. Their design has kept pace with the demand for larger output and the frequent new models and product changes of today. Spindle speeds are higher, indexing mechanisms faster and power has been stepped up considerably. Machine tooling has been made more accessible and easier, thus changes from one product to another require less time.

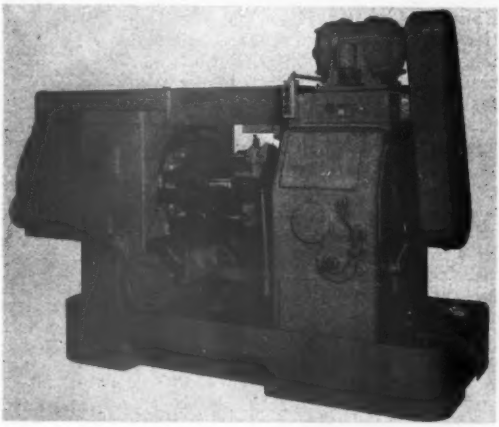
The 4 and 6 Spindle Model "R" Machines are built on the same frames, and are uniform in design so that an operator can run machines of different sizes, 4 or 6 spindle, in one group without confusion. So far as possible, machine parts, tooling and attachments have been made interchangeable.

An important and distinctive feature in the design of the 6 Spindle Model "R" is the arrangement or spacing of the spindles in the spindle carrier. The two spindles at the top and the two at the bottom are in line for direct application of tooling from the four heavy independently operated cross slides. The two spindles at the sides (2nd and 5th positions) are accessible for a "short coupled" double deck tool holder or an independent cross slide if required. This feature of design makes the tooling of the machine extremely accessible and easy to adjust.

These machines are regularly provided with stock stop in the sixth position, but can be furnished when this is specified, with stock stop in first position. The stop is brought into position by mechanism that is entirely enclosed. It drops quickly out of the way after stock feeds out and the collet closes, making possible the use of tooling in the feed position. This makes all six positions working positions, and in combination with the four independent cross slides, makes this 6 spindle machine the equivalent of machines with a greater number of spindles.

Another distinctive feature of these machines is the stock reel and method of indexing it. The front disc of the

(Continued on page 50)



New National Acme Model "RPL" 6 Spindle Automatic Chucking Machine. Design and Operating Mechanism Particularly Assure Safety of Operator; Also Provide Against Fatigue and Strain in Production.

STAINLESS STEEL Jewelry Item of the Steel Industry.

IN stainless steel receptacles, Dr. Thornwell Jacobs, President of Oglethorpe University in Georgia, is storing books, magazines, phonograph records, motion pictures, models of automobiles, steam engines and sewing machines of our day to show our descendants what we accomplished and used. But, *The American Magazine* continues: "He's counting on the sportsmanship of posterity to resist temptation until 8113 A. D."

That will be a test indeed for the non-corrosive properties of stainless steel but in the meantime the use of this "jewelry item of the steel industry"—conventional steels sell at an average price of about 2¢ per pound, stainless in its various forms at from 20¢ to 50¢ per pound—is broadening by leaps and bounds.

The price of stainless steel undoubtedly precludes its use in many instances, but during 1936 and so far this year, TDM Shops have built many special tools, dies and machines for its fabrication into shapes and parts which are being used in the products of widely different industries.

One hundred thousand tons* may not rate as a very large percentage of forty-seven million tons of all kinds of steel produced in 1936 but when it represents the tonnage of stainless steel it commands interest because it was an increase of some 50% over the preceding year. With the expanding use this tonnage should continue to step up.

Of interest in this respect is the recent announcement of one manufacturer —Rustless Iron and Steel Corporation of Baltimore—that a $1,500,000 plant addition doubles capacity and will add 20,000 tons to its annual ingot output. This plant performs every step in the manufacture of stainless steel bars, rods and wire from the virgin chrome ore to the finished product. In the new additions there have been installed three 12-ton electric furnaces, equipped with 3500 KVA transformers, and equipment for cold drawing and finishing rustless steel bars. A modern three-high type, 12-inch merchant bar mill is housed in a 240 x 80 foot monitor type building with 10-ton overhead crane equipment, billet heating furnaces, cooling pit, etc. With previously developed facilities this company now has a yearly capacity of 40,000 tons of stainless steel ingots and 12,000 tons of billets, bars and wire.

New Caledonia, Southern Rhodesia, Turkey and India being now the principal sources of chrome ore, transportation must cover half the distance around the world, consequently a year's supply is always on hand.

For some years stainless steel found its most extensive use as a "bright metal" trimming but new analyses and greatly improved processing controls resulting in a more adaptable metal and one with better machining properties have brought about its adoption for products with the widest possible use.

High tensile strength coupled with much lower weight make stainless steel ideal for the new streamlined high speed passenger trains of which the Burlington's Zephyrs are a notable example. Built by Budd of Philadelphia, they have probably been the forerunners of the Santa Fe's deluxe Super Chief type for service between Chicago and Los Angeles.

But the passenger coach itself does not provide the only use which railroads are making of stainless steel. Dining car kitchen equipment is another, as well as freight cars which carry products to be guarded against rust, and hopper mechanisms with operating parts which require non-corrosive stainless.

One of the comparatively large tonnage uses of stainless steel is the Ford automobile radiator shell. Another is the plate which is at the bottom of each cylinder water jacket on the Ford motor. Stainless steel mouldings, formed to snap in place, are used for trim on automobile bodies. Grilles, run board edgings and even hub caps are being made of stainless.

Kitchen sinks, cabinets and cupboards

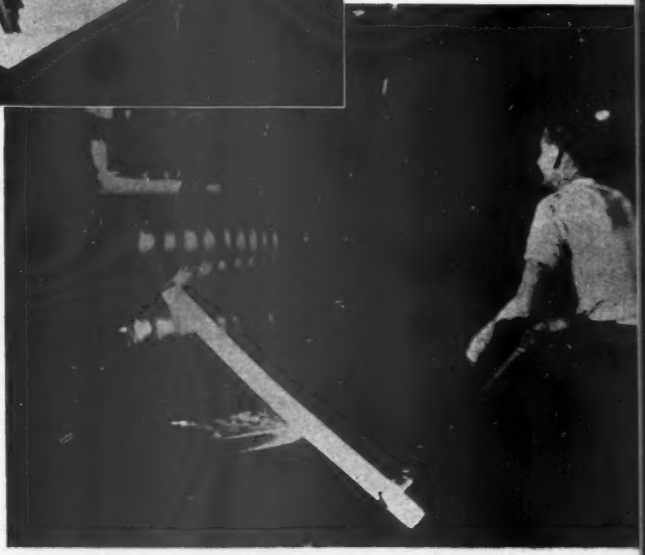
**The Iron Age* estimate is 102,460 tons.

are being built entirely of stainless as are also large portions of store and restaurant interiors. The non-corrosive properties of stainless have called it into use for vats and tanks used in the textile industry. There have been stainless steel knife blades and utensils of various kinds for years but recently entire sets of tableware are being made of it. Because of its resistance to weather it is being used as trim in store fronts. The aircraft industry is experimenting with it because of the elimination of corrosion danger.

The higher price of stainless steel frequently makes necessary the development of ingenious methods for its use. Thus one manufacturer of roller die forming equipment—The McKinney Tool & Manufacturing Company, Cleveland, Ohio—has developed a machine which takes flat stock of ordinary steel, rolls it into tubing with a ⅛" wall and covers this with stainless steel .015" thick—all of this at a fraction of the cost of all-stainless steel tubing. Similarly, light sheet is used to cover other shapes and forms.

As new uses for stainless steel are uncovered the particular requirements are studied and as a result manufacturers have recently added several new types particularly adapted to the new requirements. Although in point of tonnage stainless steel may not be a large factor very soon, there is every reason to believe that each succeeding year's production will have to be substantially increased.

A 12-ton electric furnace pouring stainless—the jewelry item of the steel industry—at the Rustless Iron & Steel Corporation's plant in Baltimore.



A veteran steel man rolling bars of stainless steel. The making of stainless requires hand craftsmanship by men long experienced in the industry.

"More Goods for More People"

THE great objective of our Machine Tool Industry, the objective which all of our engineers and designers, executives and operators are striving to accomplish is the extension of that general well-being that is so concisely expressed in the phrase, "More Goods for More People." That objective inspires our efforts to furnish industry with more accurate and more productive equipment. It is an objective that may well command universal respect. It is one that has a broad background of success, for every scrap of evidence available proves that the development of production, transportation and communication to their present highly mechanized state has been accompanied by a steady growth in employment and a richer, more abundant life for the masses of the people. That objective expresses our interest, as machine tool builders, in the welfare and prosperity of all lines of industry, because every industry from its inception depends upon the services of machine tools.

Moreover, the steady flow of more goods and better goods to an ever-growing population is, as it should be, the avowed aim of the administration at Washington. Most of the experimental legislation that causes us so much anxiety has been imposed in the name of this ideal. The difficulty is that Washington has some novel plans, yet unproven, regarding the distribution of goods to more people, but has neglected the important point that there must also be more goods produced if the distribution is to be permanently effective.

It is apparent that a very important requisite has been overlooked, namely: understanding and appreciation on the part of the government of the problems of industrial management. Our great social structure has become so complicated that it is vitally necessary for industry to co-operate with the administration, and this we have faithfully tried to do. It is quite as necessary for all branches of the government to co-operate with the managers of industry. That has not been done, and persistence in this course is dangerous.

This lack of understanding of industry's problems has made us all reluctant partners in some unusual experiments. Highly restrictive legislation, intended to help the working classes at the expense of stockholders, has handicapped some industries to such a degree that it is doubtful whether they can survive under continuation of these policies. A very few industries have benefited temporarily. Most of us have become fearful of the future because of the constantly growing burden of government debt, of taxes, of mounting costs, and rising prices. We are fearful because our progress toward the goal of well-being for all elements in our great nation may be destroyed because of this lack of understanding of industry, and its grave importance to all classes of our people whom we are trying to help.

We are more disturbed by the current recession of business, which is occurring in spite of the known shortages of housing, foodstuffs, materials and equipment. To replenish these needs should keep all of our industries running at full capacity. In machine tools alone, we know that our customers have scarcely begun to replace the old equipment that is no longer giving efficient service. No one can blame executives or managers for the cautious policy that they find it necessary to adopt, but we regret that the aggregate of production in many lines is less than is actually needed to supply the wants of the whole people at prices they are able to pay.

Tax on Undistributed Earnings

As one example of misdirection on the part of the government, due to a lack of comprehensive understanding of industry's financial problems, I cite the Tax on Undistributed Surplus laid upon corporations by the 1936 Revenue Act. The acknowledged purpose is to force a distribution of earnings, as well as to provide revenue to the government. It is based upon a misconception of the term "Profits" which leads its proponents to consider all income in excess of current expenses as available for dividends or taxes, and to look with suspicion upon reserves.

This particular legislation, if continued, will defeat the aims of the administration in several directions, not the

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"To replenish these needs (housing, foodstuffs, materials and equipment) should keep all of our industries running at full capacity. In machine tools alone, we know that our customers have scarcely begun to replace the old equipment that is no longer giving efficient service."

By CLAYTON R. BURT,* President National Machine Tool Builders' Association

least among them the stabilization of production and employment, which is so vital to prosperity. Those who were responsible for this law were not fully informed of the importance of corporation reserves to the country during the bad years of 1930 to 1934. During these years, while the government spent 8 billions of dollars in an effort to restore a normal balance, corporations spent over 18 billion dollars more than they received. To do this they not only had to have a surplus on hand, but that surplus had to be readily available in cash or quick assets; not tied up in buildings nor frozen in finished goods for which there was no market.

In the machine tool industry most companies retained a nucleus of skilled workmen at all kinds of odd jobs throughout the depression, so that they would be available immediately upon resumption of operations as a result of an improvement in business. In this industry, as well as in many others, research, redesign and development of new products provided work for a sizable staff while business was dull. At no time during these years did employment fall as low as the indexes of production.

Research and design during a depression period requires a substantial amount of money, and it takes courage to spend money in excess of income at a time when it is impossible to see what the next day will bring forth. The estimated loss in capital and surplus of the machine tool industry during the depression, based on an Association study, amounted to between 35 and 40% of the financial strength of the industry.

Any conservative executive considers it his first duty to restore his depleted cash reserves when business returns, in order that his company may be prepared to face the next emergency. The surplus tax provision, by making this almost impossible, places a heavy penalty on industries like our own, where earnings not distributed to stockholders are appropriated by the government in the form of taxes, and these earnings are lost as a backlog for the industry. Its financial position must then be gaged purely on current business. Its credit will fluctuate with the volume of orders, or lack of them. Without means to finance employment in dull times, its employees will suffer the same risks as the stockholders. No orders, no work, no dividends and no purchasing power. The possibilities that this surplus earnings tax carries for hastening and prolonging depressions are appalling and certainly were not taken into consideration by the authors of the Bill which was so hastily put through to become a law.

To furnish more goods to more people, with our increasing population, industry must expand. The normal growth of a corporation is ordinarily financed out of surplus. We are now told that industrial expansion should be paid for by the sale of new securities. Large companies can sell bonds at a moderate cost, approximately 10%. Small companies must sell common stock, and the cost is about 15%. The large corporation with a national reputation can easily find a market for its securities. It is extremely difficult for the small and practically unknown concern to raise capital in this way.

The net result is to favor the expansion of large corporations at the expense of the smaller ones, and these smaller ones are essential to our national well-being. Competition still is, and always will be, a fundamental necessity if we are to make progress. These small corporations in the aggregate are not only employers of thousands of people, they also represent the most effective check on a trend toward monopoly. Furthermore, no corporation, large or small, can be reasonably expected to sell its securities in a

(Continued on page 48)

*Mr. C. R. Burt is president of the Niles-Bement-Pond Company, Hartford, Conn., and delivered this address before the 36th Annual Convention, National Machine Tool Builders' Association at Hot Springs, Virginia, October 25th, 1937.

"MACHINES and WORKING HOURS"

A Study of the Relationship of Mechanization and the American Standard of Living.

OVER the editor's desk comes a new pamphlet entitled "Machines and Working Hours," published by the Machinery and Allied Products Institute.

It is described as "A Pictorial Presentation of Facts on Mechanization, Working Hours and the American Standard of Living."

It is of particular interest to readers of Tool·Die·Machine PROGRESS that "productivity of a machine bears little or no relation to employment and there is no basis for assuming that a machine which doubles production will cut employment in half. The manufacturing industries as a whole have increased mechanization by more than 300 per cent since 1899 and production by more than 200 per cent; yet they have increased, not decreased, their employment. Many industries which have increased mechanization and production most have increased employment most. If mechanization creates more jobs than it destroys, which all of the facts indicate that it does, it is not logical to assume that it is the cause of today's unemployment."

The United States Census Bureau and the United States Bureau of Labor Statistics are cited to show that "most machinery is used in manufacturing, yet factory jobs have increased faster than population" and that from 1899 to 1937 these increases were respectively 83% and 72%.

Again the Census Bureau and Industrial Conference Board are quoted as authority for the statement that "there are 18,000,000 more jobs today than in 1900 when industrial mechanization was less than ⅓ that of today." Actual figures are 29,000,000 in 1900 and 47,000,000 in 1937.

The Institute has drawn figures from 8 major industries to show that "employment follows trend of power use." Four of them—aluminum, aircraft and parts, printing and publishing, and petroleum refining, increased their use of power and fuel the most between 1919 and 1929; and their employment also increased substantially, while the four—boots and shoes, sugar refining, leather and flour—whose power and fuel consumption declined to the largest extent decreased their employment.

The fact that "yesterday's work could be done in fewer hours today" brings the question—"Does this necessarily reduce the number of hours of work to be done?" The Institute calls attention to the well known fact that substantially lower prices for manufactured products have come about through industrial mechanization, which also has brought into use many new products. Thus workers have been enabled to increase their purchases to such an extent that more man-hours of work are required to meet the demand for more goods. This "mechanization," the pamphlet states, "makes it possible to do more work in less time and thereby raises the standard of living. When less is accomplished by working less, the nation as a whole must pay for it in fewer goods and services to be enjoyed." Thus, with production today more than three times what it was in 1899, and man-hours for the same period showing an increase of only 29%, the Institute believes that "had it been necessary to increase man-hours in proportion to production, improvement in prices and the standard of living would have been impossible." In other words, if man-hours had risen in the same proportion as production, costs would have limited both an improvement in prices and maintenance of the standard of living. The Institute points out that "America has steadily reduced working hours" and that this decline is at a faster rate than the increase of productivity.

To the tool and machine using industries, it is interesting that although "machinery affects manufacturing occupations most," unemployment predominates in occupations other than manufacturing. In the first six months of 1937,

(Continued on page 47)

An Unusual Book Commemorates 50 Years of Unusual Service

"This is the lathe, the prime machine,
that makes the tooling, that serves
the plant, that shelters the group,
that offers the goods, that betters
the home, that holds the throng,
that lives on the typical Main Street."

THE most unusual, but at the same time the most interesting, presentation of the construction and the functions of a machine tool has just come to our desk in the form of a different kind of catalog—we have to call it that for want of a better word. And when we say different, we mean different. Because it is so different, and at the same time interesting, it will be effective. It will sell lathes.

But we started out to describe this anniversary catalog which depicts so colorfully the fifty years of LeBlond's service to Industry. Remember "The House that Jack Built," a jingle book of quite some time ago? In the new LeBlond catalog we have the modern version of it for modern members of Industry.

"What Makes Main Street" is an exceedingly adroit treatment of a very prosaic subject. Eight artistic, colorful panels illustrate the clever jingles which build up the lathe's relation to the "Main Street" family and four more tie the LeBlond organization specifically into the picture.

We like the fourth panel particularly: "This is the goods, that betters the home, that holds the throng, that lives on the typical Main Street," perhaps because therein we see about a dozen products, in the fabrication of which tool and die builders lend a hand, using lathes of course.

Now show us the man whose appetite has not been whetted by this lighter touch to turn to the more serious pages of technical description. But even here a surprise awaits. Unusually fine illustrations are accompanied by terse copy and you go from "Three-Bearing Spindle" to "Outstanding Beds," with "Modern Driving" you move eagerly along through "The Ten Swings" into "The Tool Rooms along Main Street."

Finally you are told that in the minds of all LeBlond users there is a "Certainty of Service" which with this year enables the Company to celebrate fifty successful years of service to Industry.

You will want your copy of the LeBlond Fiftieth Anniversary Book. Send for it now with the coupon on page 5.

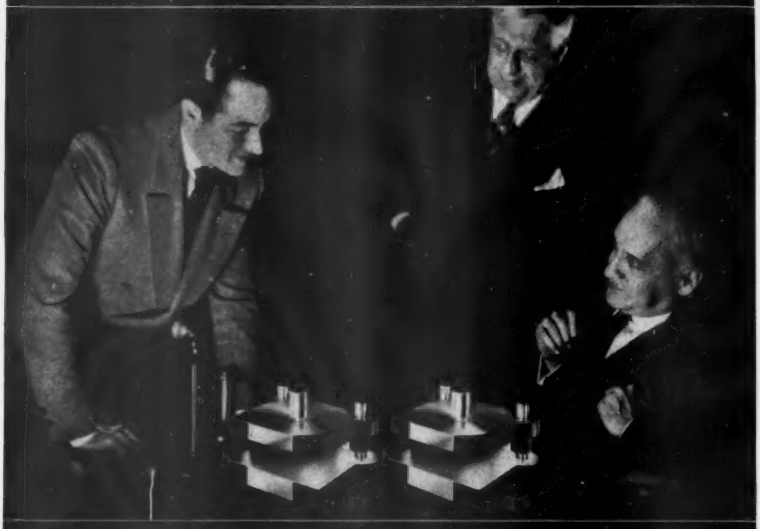
TOOL DIE MACHINE CONTRACT SHOPS ARE HAVING A PROFITABLE YEAR

SPECIAL Tool, Die and Machine Shop Institute records indicate less falling off of orders among members of the Industry than has occurred in other industries. The same records show these shops are continuing to buy new equipment, availing themselves of the opportunity to obtain prompter deliveries.

Tool · Die · Machine PROGRESS offers manufacturers of TDM shop equipment, parts and materials an unexcelled opportunity to reach shop owners and executives of the Industry, as well as the men in the production industries who are responsible for development and manufacture of their own tools, dies and machines.

There is no more direct way to reach the builders of tools, dies and machines than through advertising in Tool · Die · Machine PROGRESS. Rates are moderate. Results are proven. Address George J. Huebner, Publisher, 215 Fairmount-Cedar Bldg., Cleveland, Ohio.

PRECISION PAYS



6 WEEKS FROM NOW I COULD TELL YOU WHICH IS WHICH

DANLY DIE SETS AND DIE MAKERS' SUPPLIES
from the
8 Danly Branch Stocks

BRANCHES:

LONG ISLAND CITY, N. Y.
36-12 34th STREET
DETROIT, MICHIGAN
1549 TEMPLE AVENUE
CLEVELAND, OHIO
1745 ROCKWELL STREET
DAYTON, OHIO
990 E. MONUMENT AVENUE
PHILADELPHIA, PA.
3913 N. BROAD STREET
ROCHESTER, N. Y.
16 COMMERCIAL STREET
MILWAUKEE, WIS.
513 EAST BUFFALO STREET

● Die Sets look alike because accuracy to ±1/10,000 of an inch is not visible to the naked eye. But in performance there's a vast difference.

Danly Precision Die Sets have the absolute close tolerance of fit between guide posts and bushings that means freedom from shearing, more accurate and faster production, fewer regrinds and longer life for the die.

Precision Pays—secure it by specifying Danly Precision Die Sets for your dies.

DANLY MACHINE SPECIALTIES, Inc., 2121 So. 52nd Ave., Chicago, Ill.

DANLY PRECISION DIE SETS

When you order or write about products described in TDM PROGRESS please mention the publication.

PRECISION PAYS

ESPECIALLY WHEN IT GOES WITH SURE DIE SPRING PERFORMANCE AND LONGER DIE SPRING LIFE

DANLY DIE SETS AND DIE MAKERS' SUPPLIES

Order from Your Danly Branch

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1549 TEMPLE AVENUE

CLEVELAND, OHIO
1745 ROCKWELL STREET

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PHILADELPHIA, PA.
3913 N. BROAD STREET

ROCHESTER, N. Y.
16 COMMERCIAL STREET

MILWAUKEE, WIS.
513 EAST BUFFALO STREET

● Danly Die Springs are coiled from a special spring wire of a Keystone section so that strength and clearances are uniform inside and out. The result is: first, accurate performance; and secondly, ability to retain their spring under repeated closings of the die. Failure of a spring can easily result in destruction of a die and the tying up of an entire production line. If there is one place in the die where it is important to have the best, it is the springs.

Precision Pays—Insure it by specifying Danly Flat Rounded Springs—and all Die Makers' Supplies.

DANLY MACHINE SPECIALTIES, Inc., 2121 So. 52nd Ave., Chicago, Ill.

DANLY DIE MAKERS' SUPPLIES

When you order or write about products described in TDM PROGRESS please mention the publication.

Modern Facilities~
FOR SALE

In every part of the United States are to be found TDM shops with the most modern facilities. According to the requirements of the industrial areas in which they are situated or from which they draw their business, they have carefully planned facilities for the building of:

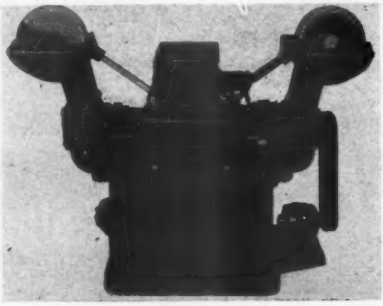
- Tools, Gages, Jigs and Fixtures for all kinds of production.
- Dies and Moulds of every description.
- Machines especially designed and developed to increase production and lower costs for almost all industries.
- Precision Parts for assembly into products of great accuracy.

Hundreds of TDM shops manufacture Stampings and Assemblies; others have departments which specialize in Machine Work. There are large shops and small ones, shops with facilities for building the largest Dies and Machines and also those in which the highly skilled workers seldom work without their gage blocks.

Among the several thousand shops of the TDM Industry is to be found every necessary modern facility for accurately designing and building every conceivable type of special equipment for modern high production manufacture.

Use these modern facilities of the TDM Industry more.

SPECIAL TOOL, DIE & MACHINE SHOP INSTITUTE
A NATIONAL TRADE ASSOCIATION
This advertisement is one of a series intended to describe the TDM Industry.



When you order or write about products described in TDM PROGRESS please mention the publication.

SPECIAL TOOL, DIE & MACHINE SHOP INSTITUTE
TOOL MANUFACTURERS' ASSOCIATION, *Dayton, Ohio*
J. F. DEIBEL, *Pres.* E. H. JOHNSON, *Vice Pres.* G. J. CAPLISKI, *Treas.* H. L. NIELSON, *Sec'y*

Dayton Group Has First Meeting of The Fall Season

THE Tool Manufacturers' Association, whose membership includes shops in Dayton and vicinity, Cincinnati and Columbus, Ohio, held its first business meeting of the Fall Season at the Van Cleve Hotel, Dayton, Friday evening, September 24th. About 40 attended.

The speaker of the evening was Ernest F. DuBrul, former secretary of the National Machine Tool Builders' Association, and now a consultant manufacturing engineer resident in Cincinnati.

The subject of Mr. DuBrul's address was "Where are your profits going? Why? And what are you going to do about it?" From a lifetime rich in industrial experience, he drew comparisons distinctly favorable to present-day methods and equipment. He paid tribute to modern machinery and tools as among the principal contributors to the remarkable changes which have taken place. Mr. DuBrul impressed upon his listeners the necessity for prices which included an adequate profit margin. He cited several instances where manufacturers during the years of good business volume had so under-priced their products as to not provide a reserve to carry them through the lean years. He emphasized the value of business data and how directly they contribute to effective business management. He pointed out that with so much legislation by the National Congress and the State Legislatures accompanied by new taxes, there was a decided necessity for more careful individual business administration on the part of executives. Also, with increased labor rates taking more of profits the only way out for the manufacturer is to improve supervision, and effect manufacturing economies wherever possible.

In closing, Mr. DuBrul pointed out the value to be derived by members of the Industry in associating with each other and exchanging ideas on matters of common interest. The best way, he said, to convince Industry members of an error in their procedure is to repeatedly bring up the matter for discussion before a group so that all present will come to understand what constitutes the best practice.

AN INVITATION

The Tool Manufacturers' Association has its office with the Chamber of Commerce in the Biltmore Hotel, Dayton, Ohio. Members of the TDM Industry, and readers of Tool·Die·Machine PROGRESS are invited to call on us and make use of our facilities when they are in Dayton. H. L. NIELSON, *Sec'y.*

ALLOY HY-TEN STEELS
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SPECIAL TOOL, DIE & MACHINE SHOP INSTITUTE
CHICAGOLAND

Reported by WILLIAM M. PHARES, *Secretary*, Chicago Division
KARL HARIG, *President* E. W. FRITZELL, *Vice President* CARL DANIELSON, *Treasurer*

School of Tool and Die Estimating

THERE exists today, in the city of Chicago, an accredited School of Tool and Die Estimating. The school was originated by the Chicago Division of the Special Tool, Die & Machine Shop Institute. It is being conducted at the Carl Schurz High School where it is one of the most popular electives in the evening school curriculum. Classes are held on Tuesday and Thursday evenings from 7:45 to 9:45 P. M. All classes are under the supervision of competent instructors who have been selected and trained by the Institute. They hold regular teachers' certificates and are compensated by the Board of Education by whom they have been officially appointed to regular teachers' positions.

The courses are absolutely free, there being no tuition or charge of any kind, other than a deposit of five dollars which is required by the Board of Education to insure regular attendance. The deposit is refunded provided the student has attended seventy-five per cent of the classes.

The course requires two years for completion. During the first year elementary designing and simple blanking and forming die estimating is taught. The second year includes the designing and cost estimating of the more complicated forms of compound, progressive and deep drawing dies. Students are given certificates of learning on completion of the two-year course.

This school which now has more than one hundred students enrolled, and has definitely blazed a new trail in the field of education, had its modest beginning less than three years ago. It was part of the Industry's answer to one of our most perplexing problems—the development of more efficient mechanics. While it is obvious that not all of the students who graduate from these classes will follow the profession of die estimating, the benefits to be derived from the work are of major importance. These benefits become apparent and begin to bear fruit remarkably soon after the student begins his training. This for the reason that the first subject for consideration is the proper construction of dies and the importance of the die maker in the field of industry. Then too—much of the home work assigned to the student during the early stages of his training is the making of time studies of actual operations necessary to the construction of the die.

As soon as the student acquires the proper conception of the work he is doing and becomes time conscious, his efficiency begins to increase rapidly and he becomes of greater value to both his employer and himself. This is not just a theory but actual experience as recounted by many of the students as well as their employers.

Chicago's Big Fall Party

On the evening of Saturday, November 20, 1937, members of the Chicago Division and their friends will attend the Annual Autumn Dinner Dance. The affair will be held in the beautiful Bal Tabarin in the Sherman Hotel. Cocktails will be served from 6:30 P. M. and dinner at 7:30.

A gigantic floor production is being arranged under the personal supervision and direction of Leo Nadel. One of Chicago's most popular swing bands will supply the urge to the twinkling toes of the dancers. The dinner itself will be prepared by the Sherman Hotel's famous chefs. It will be served amid many pleasant surprises which are being arranged by the Entertainment Committee headed by Miles Irmis. Out-of-town members of the S. T. D. & M. S. I. are cordially and specially invited to attend this party. Just drop our Secretary a line and all arrangements will be made to insure your comfort and enjoyment.

SPECIAL TOOL, DIE & MACHINE SHOP INSTITUTE
NORTHERN OHIO DIVISION, *Cleveland, Ohio*
JOS. H. LYONS, *Pres.* W. L. WARRANDER, *Vice Pres.* E. P. HAHN, *Sec'y-Treas.*
Meets every Wednesday for luncheon, 12:15 P.M., Allerton Hotel

Cleveland Group Members Meet Each Week

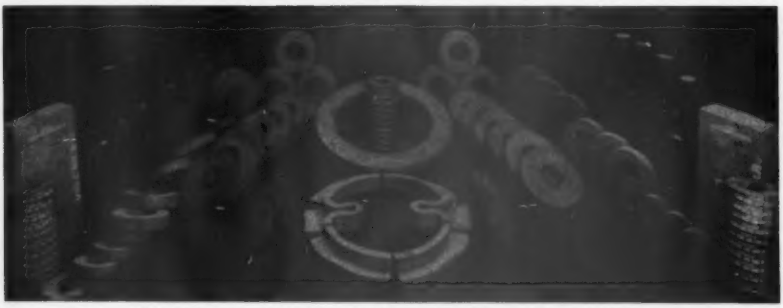
MEMBERS of the Northern Ohio Division continue to meet regularly every Wednesday noon for luncheon. The meetings are well attended and are virtually round-table discussions—industry problems as well as subjects of individual import being brought up.

A case in point is the request, at a recent meeting, of a member asking those present to recommend the most satisfactory steel from which to machine 6" thrust washers. It was explained that the washers would not have to be particularly high in tensile strength but would be required to withstand considerable compression. The discussion brought out that opinions vary but the inquirer got the information he wanted.

First Evening Meeting of 1937-8 Season

MEMBERS of the Northern Ohio Division opened their season of evening meetings by "putting-on" a stag clambake and lobster dinner the evening of Friday, October 22nd. Almost 60 Industry members and guests were present and a lively evening it was. A small orchestra entertained during dinner and later an accordion sister-team provided music. It was also surprising how much amateur talent comes to the front at such times. The discussion of business was decidedly taboo at this first meeting. The committee plans a series of meetings to be held throughout the winter and at these there will be speakers to discuss subjects of interest.

E. P. HAHN, *Secretary.*



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Chicago Power Show of Great Interest to Tool and Die Builders

CHICAGO, ILL., Oct. 10—Well Boss, the show is over. It was a great show. Each afternoon and evening from Monday, October 4th, through Saturday, October 9th, crowds invaded the exposition hall of the International Amphitheatre. Speaking of power—there were plenty of powerfully interesting exhibits from the viewpoint of the TDM Industry member. We saw most everybody we knew there at some time or other including a lot of visitors from Rockford, Milwaukee and other nearby towns, and some of them came back several times.

Several models of Doall Metalmasters and Contour Sawing and Filing machines were on display and the versatility of the machines was set forth in photographic slides projected on an attractive mirror background. These depicted graphically actual die and fixture sawing and filing on Doall machines.

Another exhibit which drew crowds was the "workshop" of the Brett Machinery Company, district distributor for several manufacturers of machines and products essential to tool and die building. There was Grob Brothers' large open end band saw efficiently cutting out die openings and punches, while several types of continuous filing machines were in operation removing metal—all in record time. A few feet away was one of those Moore Jig Borers doing precision boring on actual jobs brought in by some of the local shops. Included in this same exhibit were working demonstrations of the Magna-Sine, a magnetic sine table for grinding single or compound angles without the aid of angle plates or clamps; the Hamilton portable elevating table which easily carries loads up to 5000 pounds; the magazine fed Detroit Power Screw Driver which drives screws with the speed of a machine gun, and the Multeplex Wire Forming Machine which forms wire from reels into any shape desired with remarkable rapidity.

Yes, Boss, it was a great show and if they keep on inventing these new labor saving machines the Die Builders will soon be able to just lean back comfortably in their easy chairs and watch the sheckels roll in. WILLIAM M. PHARES.

New American Automobile in Production

THERE is in production right now an entirely new American automobile. It will be introduced by The American Bantam Car Company which, several months ago, purchased the plant of the former Austin Car Company at Butler, Pa.

The new Bantam "60" line will make its bow at the New York Automobile Show, October 27th to November 4th. Models will include Bantam coupes, roadsters and quarter-ton panel and pick-up trucks at prices from $75.00 to $125.00 below any other line of automobiles. This will put them in the $400.00 range.

The manufacturers make the claim that the car will attain a speed of 60 miles per hour and will travel 60 miles on a gallon of gasoline. The overall length is 120". The 4-cylinder 20 HP engine has rubber mountings and bodies will be all-steel welded.

Officers of the American Bantam Car Company are: R. S. Evans, president; Martin Tow, treasurer; W. A. Thornton, secretary and assistant treasurer. A. C. Olander is sales manager. R. O. Gill is in charge of manufacturing.

Volume of Machine Tool Orders Turns Upward

THE National Machine Tool Builders' Association reports that the September volume of new orders exceeded the previous 3 months. The three month's average thus reverses the downward trend which began in May.

Domestic orders in September were down less than 10% from August while foreign orders were sufficiently large to account for the increase. The total index rose to 210.7; the three month's average turned upward from 180.9 last month to 187.2 for September.

Removal of New York Office

The Weldon Tool Company announces the removal of its New York district office to 790 Broad Street, Newark, New Jersey.

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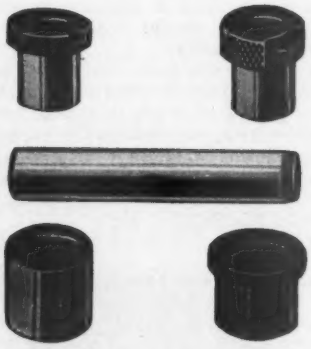

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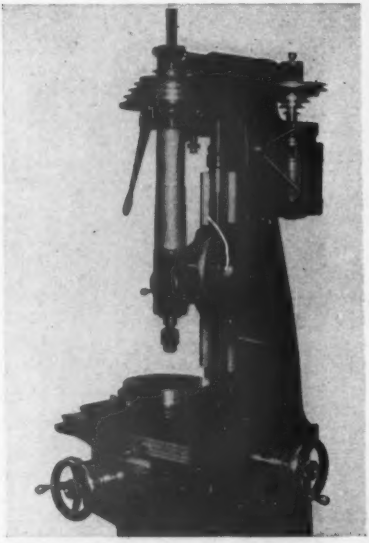

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General Distributors
Marburg Bros., Inc., New York, N. Y.

ITS accuracy compares favorably with that found in any of the most expensive machines. Its cost has been brought down to a practical point by simplifying all mechanism and by eliminating many unessential features. The accuracy and the great saving in time heretofore secured only by using machines involving large investments are now within the reach of every tool, die and machine shop where holes have to be drilled to accurate locations.

★ ★ ★ *This is the machine that received such outstanding approval at the recent Chicago Power Show.*

BRETT MACHINERY CO.

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Also exclusive Chicago representative for:
Grob Bros., page 11 · Hamilton Tool Co., page 45
Robbins Engineering Co., page 4

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Larger Doall Metalmaster Added to Line

Fig. 1: Operator using new automatic instant butt-welder preparatory to internal sawing operation on Doall Contour Machine.

A larger Metalmaster model has been added to the line of DOALL Contour Sawing, Filing and Polishing Machines. It has 30" throat capacity and the base is an arc-welded steel housing thoroughly seasoned. This model MD has the built-in automatic instant butt-welder for the saws. This new welding unit has features not found in any single purpose saw butt-welding machines generally used by band saw manufacturers. It is a precision welding instrument especially designed with a voltage regulator for narrow blade saw welding and it assures automatically the exact amount of current required for each saw width. In fact the entire butt-welding operation is done automatically by shifting one lever. The result is an instant weld and a joint even stronger than the original saw.

This new Model MD has dial control of cutting speeds, the indicator recording the exact speeds within the broad range of 40 to 800 feet per minute. The "job selector" dial translates the correct speed to be used in the sawing or filing of 48 different materials, thus a new operator or even an apprentice can produce creditable results.

The MD model has a new power work feed actuated by weights and levers which are adjustable with a hand wheel conveniently located to provide the required pull. Another feature of this power feed is the mechanical toggle which rotates the work to follow a contour, thus obviating hand guidance. The work feed is instantly released by means of a foot pedal. A new type of detachable unit for disc cutting is furnished with the described model and to assure the greatest possible efficiency of handling work in process the 24" x 24" work table has a 10" extension and a 4-way tilt. The machine will handle materials with a maximum thickness of 8" although it can be furnished on special order up to 12" thickness capacity.

In general the Metalmaster MD is designed especially to efficiently handle a wider range of work described by the manufacturer as "contour machining." A description in greater detail may be obtained by writing Continental Machine Specialties, Inc., 1301 South Washington Avenue, Minneapolis, Minn.

Fig. 2: New power work feed on Doall Contour Machine rotates work to follow contour mechanically.

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- Unusual features include large die space and chrome nickel steel crankshaft.
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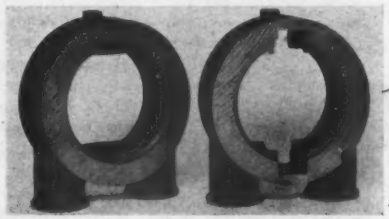

Fig. 7

The slots in these alloy cast iron pump bodies as well as spiral steel gears are broached on the machine in the accompanying illustration.

Single Machine Broaches Both Spiral Gears and Pump Bodies

A Broaching Machine, designed to handle more than one product, distributes operating costs and makes for a better return on investment. The Colonial Standard Vertical pull-up type broaching machine here illustrated is of such flexible design that it handles the broaching both of spiral internal gears and of five different sizes of pump bodies.

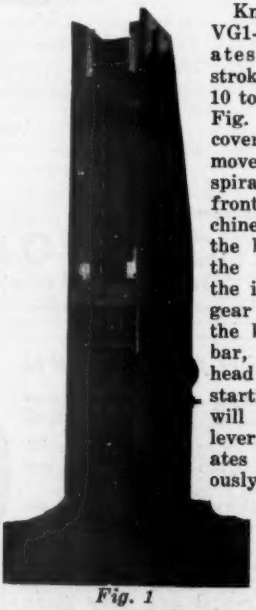

Fig. 1

Known as model VG1-10-48 it operates on a 48" stroke and has a 10 ton capacity. In Fig. 1 the lower cover plate is removed showing the spiral bar on the front of the machine which rotates the broach during the broaching of the internal spiral gear teeth. Near the bottom of the bar, on the ram head which is in starting position, will be seen the lever which operates to instantaneously engage or disengage the spiral guide bar. Fig. 2 illustrates the type of pump bodies in which slots are broached on this machine.

This Colonial Broaching Machine has variable speed control and the handling of the broach is completely automatic. Stroke is adjustable which makes possible the shorter stroke necessary for use on the pump bodies which are made of alloy cast iron; the gears of steel.

Chips drop through into the base of the machine from where they may be removed from either side.

For more detailed information about this machine please write Colonial Broach Company, 145 Jos. Campau Street, Detroit, Mich.

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SAFETY *Centerless* WHEELS

ARE EXCELLENT FOR ALL OPERATIONS
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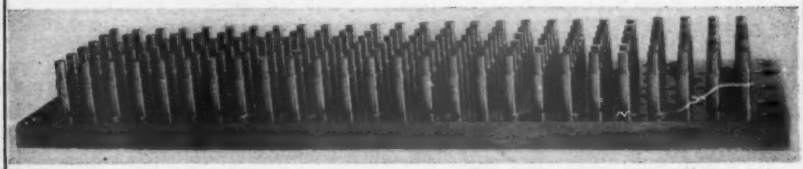
for punches and dies prove their remarkable superiority when used in such multiple punch assemblies as this automobile radiator core tank piercing die.



156 punches—body diameter .500″, piercing diameter .400″, spaced equally 1″ each way.

Easy removal of one or more rows quickly adapts the die for different radiator designs and sizes.

The Screwlock principle assures:

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Akron Die Shop Makes An Unusual Die

IT'S Simon the Pie Man. No, it's the Wizard of Oz. No, it's . . . oh, what's it matter—there's no prize anyway if we do name him.

But take a second look at that die. It was made in a TDM Contract Shop—Ferriot Brothers, Inc., Akron, Ohio, of a Firth-Sterling oil hardening die steel. A dual sawing and filing machine was used to cut the die from a blank 1½ inches thick. After cutting and shaping, the die was bevel milled and filed to the correct thickness.

The highly irregular contour of the die—its sharp points and angles—presented quite a problem in hardening. It was oil quenched from usual temperature so that the back of the die tested 61 "C" Rockwell and there was no noticeable shrinkage or warping.

The grotesque rubber figure at the right is the product of the die. After being formed by the die in a clicking machine the surface designs are molded and a final trimming finishes the figure. Production is at the rate of about 26,000 per day.

A similar die one half as large has since been built and is producing a smaller figure successfully.

Hamilton Mill Cut Rotary Files

Eighteen standard shapes and sizes made up in five different cuts. Adaptable for all classes of work and for all kinds of materials. Try them on your next job.

Circular and price list on request.

THE HAMILTON TOOL COMPANY

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New Under Motor Drive Attachment for Sheldon Lathes

AN Under Motor Drive Attachment is announced for the Sheldon line of 10" Lathes. The illustration shows the attachment installed in a cabinet leg, although for the bench type the unit is readily installed on the under side of the bench.

The Sheldon 10" is a new back geared, screw cutting precision lathe with semi steel bed and headstock of the solid, full-webbed, bowl type. It is supported on the bed by one V and one flat way. Operating gears are completely covered.

The spindle is made of 50 carbon crucible steel, is exceptionally large and is bored a full 1⅛" through its entire length. Spindle bearings have bronze bushings.

The new under motor drive unit provides 4 speeds by means of 2 positive clutches installed on the drive shaft. These are operated by the 2 levers shown immediately in front of the cabinet leg. Changes in the 8 spindle speeds, 4 direct and 4 through the back gears, are made simply by turning the clutch levers, there being no belts to shift, no doors to be opened or guards to remove.

Sheldon 10" Lathes swing 10¼" over the ways and are furnished in 2 bed lengths providing maximum center distances of 20" and 26". Semi-quick change gear boxes are standard on all 10" lathes with gears necessary for cutting threads from 4 to 80 per inch.

Additional details of all Sheldon Lathes may be had by addressing Sheldon Machine Company, 3256 Cottage Grove Avenue, Chicago, Illinois. Ask for Bulletin TD.

New Sheldon 10" back geared screw cutting precision lathe with under motor drive attachment.

Porter Master Hardness Conversion Charts Again Available

THE demand for the Master Hardness Conversion Charts, developed by The George H. Porter Steel Treating Company, described in the July issue of Tool·Die·Machine PROGRESS, was such that we have arranged for an additional supply and requests for copies will be promptly acknowledged.

Tool·Die·Machine PROGRESS, 215 Fairmount-Cedar Building, Cleveland, Ohio.

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New Pneumatic Slide Cushion for Stamping Presses

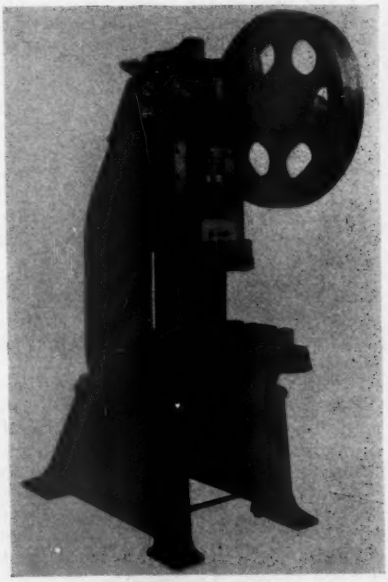
A SINGLE action stamping press may be converted into a triple action press with the use of the new compact pneumatic slide cushion recently announced by The Marquette Tool & Mfg. Company.

This cushion is mounted under the slide as will be seen in the illustration. It is adaptable to all types of stripping and blank holding operations and may be used effectively also on automatic strip feed presses for making friction tops for the numerous kinds of air-tight cans now generally used for liquids.

The functioning of this cushion as a stripper is said to have a number of advantages over the spring type. No jacking-back of the stripper plate against stiff springs is necessary when setting dies. All that is required is to release the air from the cushion and the stripper plate will easily slide back out of the way.

No springs are used and their possible breakage is eliminated. Furthermore, it is possible to control the stripping in a positive manner so that the cushions will operate at the correct moment. A flexible hose connects the cushion with the air supply. These cushions are built in all sizes.

For detailed description write to The Marquette Tool & Mfg. Company, Division of E. W. Bliss Company—1428 Hastings Street, Toledo, Ohio.



Marquette pneumatic slide cushion in use on Bliss single action press provides triple action.

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H. P. Preis Engraving Machine Co. 159 Summit St. Newark, N. J.

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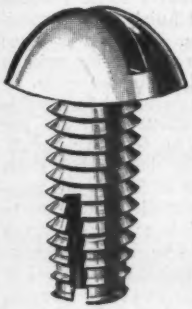
New Shakeproof Thread Cutting Screws

THE new Shakeproof Screws cut their own threads. They are said to provide an ideal fastening for anchoring metal to metal. The method of procedure is to punch or drill a hole of the proper size in the material to be fastened, insert the Shakeproof Thread-Cutting Screw and turn it down with a hand or power screw driver.



The Shakeproof Screw has a patented spring-action slot cut longitudinally which produces a serrated cutting edge which carries the screw into the metal to form its own thread. The screw is specially hardened to assure efficient performance in metals and alloys of almost all thicknesses and can be used in most plastic materials also. The claim is made that because the screw cuts its own thread there is a perfect fit and, having a standard machine screw thread, replacement can be made if necessary with an ordinary machine screw.

Shakeproof Thread-Cutting Screws are made with standard round and flat heads in diameters up to and including ¼". Hexagon, oval, binding, oven and filister heads are furnished on special order.

For descriptive circular TD write Shakeproof Lock Washer Company, 2501 North Keeler Avenue, Chicago, Illinois.

Of Interest to Heat Treaters

L. D. GABLE and E. S. Rowland, respectively metallurgist and research metallurgist with The Timken Roller Bearing Company, Canton, prepared an unusually interesting paper for presentation as a part of the symposium on Carburizing at the National Metal Show in Atlantic City.

I regret that the paper is too long for us to reprint here but it is available upon request to anyone interested.

The Editor

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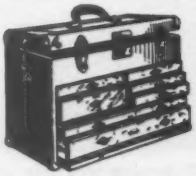

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Multiple Boring Machines

A new line of Multiple Boring Machines, which have as their particular purpose the elimination of those errors in machining which frequently occur because it is necessary to use several different machines for precision operations on a single piece, is announced by the Ex-Cell-O Corporation. This newly designed line of high speed, high production multiple boring, facing and turning machines comprises both two- and three-way types, equipped with from 2 to 9 boring spindles. Both types are here illustrated. The multiple machining feature makes possible the single location of a part to be machined from several sides. In the event of an operation being necessary from one side only, multiple fixtures provide higher productivity per machine hour. In the 3-way machine illustrated in Fig. 1, the boring spindles with individual motor drives are separately mounted on sliding tables. An Ex-Cell-O hydraulic system with individual pumps for each table operates the table feed.

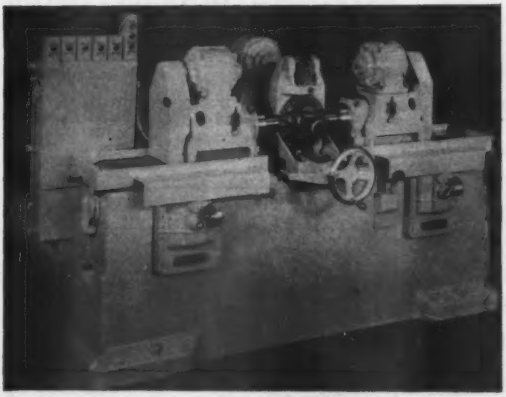


Fig. 1: Three-way boring machine with individual motor drives for operating spindles.

The spindles are of the standard precision ball bearing type mounted in heads specially designed for compactness. Cutting cycles are completely automatic. Each table is provided with micrometer-adjustment dogs for setting the distance for fast approach, cutting, dwell and fast return. The dwell period at the end of the cutting stroke is separately adjustable for anything from 1 to 30 seconds to insure the desired finish with a minimum of elapsed time. A rapid advance between 2 holes bored by one spindle may also be provided for in the cycle.

Spindle speeds are designed to provide a cutting speed of about 400 feet per minute with carbide cutting tools. Feeds may be varied from nothing to 42 inches per minute to meet all requirements of materials to be cut, types of work to be done and character of finish required. For high speed cutting steels, lower spindle speeds are provided.

Individual starting controls of the push button type are provided on the control panel for the electric motors operating the spindles and pumps, with two additional buttons permitting simultaneous starting and stopping of all motors.

A similar flexibility is incorporated in the table travel controls. Each table is

(Continued on page 49)

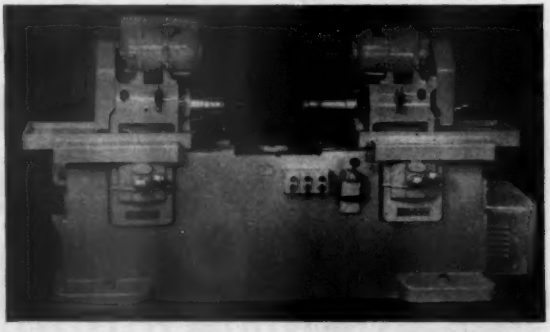


Fig. 2: Two-way operating machine which may be equipped to do boring, turning and facing operations.

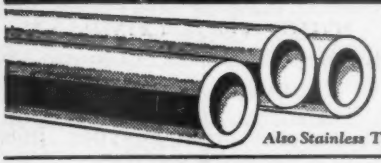
Dykem Brings Out New Metal Marking Colors

THE Dykem Company has perfected metal marking colors which are said to be radically different from any others on the market. They contain no oil or moisture and result in an exceedingly clear, legible impression when applied as parts numbers, alloy or analysis symbols, names, dates or identification marks of any kind. The colors are effective when applied by rubber stamping or stenciling.

Dykem colors are said to dry in 10 seconds with a thin, tough coating which resists oil, moisture, cold and frequent handling, although it is entirely harmless to metals of every kind. Even metal pieces with a thin film of oil readily take the colors because they penetrate the oil film immediately and dry quickly on the metal surface.

For samples of these new metal marking colors write The Dykem Company, Department MAC, 2299 North 11th Street, St. Louis, Mo.

OIL HARDENING TOOL STEEL TUBING



Substantially reduces labor costs by eliminating the expensive procedure of drilling from the solid.

BISCO TOOL STEEL TUBING is a fine grade tool steel in tubular form available in sizes up to 14" diameter and 2" wall thickness; other sizes to your specification.

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DIES - JIGS - FIXTURES
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NEW OPENSIDE PLANER EQUIPMENT
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We are equipped to make dies and stampings in production up to 250 tons capacity

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THE GEO. H. PORTER STEEL TREATING CO.

Tool Work Our Specialty

- *Heat Treating*
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Write or phone for our copyrighted Hardness Conversion Chart

Move heavy dies, jigs and fixtures more quickly, economically and safely
WITH THE
HAMILTON PORTABLE ELEVATING TABLE
Eliminates costly mishaps and breakage . . . Is a labor saver because it requires only one man to handle . . . Two Sizes: 2,000 pounds and 5,000 pounds.
Write for circular and prices.
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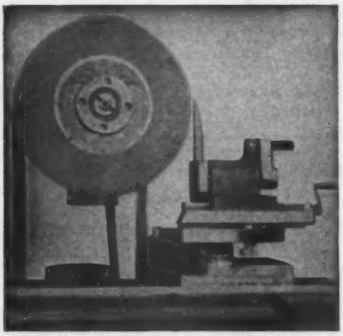
THE ROYAL DRESSER



. . . quickly and accurately dresses grinding wheels in Concave and Convex forms, Angles and Radii or combinations.
Time saved by not having to set up inadequate fixtures easily pays for the Royal. *Write for circular and price.*

ROYAL GRINDING WHEEL DRESSER COMPANY
Box B Royal Oak, Michigan

New Buffalo Automatic Shear

THE Buffalo Forge Company, manufacturer of many of the drill presses used in tool, die and machine shops, announces a new Automatic Shear for Bolt and Rivet Stock for production manufacturers.

This machine, designed for continuous shearing, is equipped with automatic feed rolls directly driven from the intermediate shaft of the shear. The feed rolls are so constructed that they grip and draw in the stock on the "up" stroke of the machine but only when the knives are open. This grip releases instantly when the stock comes in contact with the back gauge and the upper blade begins its descent. Thus, the stock is not scored or marred by roll slippage under pressure.

Three bars may be sheared at one time at the rate of 30 strokes per minute which totals more than 5,000 sheared pieces per hour. A roll specially designed to automatically adjust itself to any ordinary irregularities in the bar stock eliminates difficulties frequently encountered from such causes.

An open-side tilting type gauge, adjustable for bolt lengths up to 18" for automatic feed and 48" for hand feed, is provided on the back of the machine. A special cropping gauge provides for an initial cut of 1" off each bar to assure a perfectly square end and remove the more or less ragged mill cut. Before the start of the run this gauge automatically moves out of position and permits stock to be measured by the regular gauge.

An automatic stop disengages the shear clutch when the ends of the stock bars reach the feed rolls. This automatic electrical stop is adjustable for the salvaging of predetermined stock ends. The clutch which may be engaged with the hand lever or the foot pedal is arranged to disengage automatically after each stroke or to operate the shear continuously until the automatic stop functions.

This new Buffalo shear is extremely flexible. Its construction is rugged and compact. The motor is mounted on the top of the shear frame and drives by means of V belts directly to the fly wheel. All gears, belts and pulleys are enclosed within neat expanded metal guards.

An attractive bulletin, No. 329 TD, is available upon request to the Buffalo Forge Company, Buffalo, New York.

When you order or write about products described in TDM PROGRESS please mention the publication.

"Machines and Working Hours"

(Continued from page 24)

according to the National Industrial Conference Board, there was actually an increase of manufacturing employment on an average of about 5% above the 1929 level. With this employment record higher than that of any other major class of occupations the Institute says: "Dividing factory work by shortening hours would not give jobs to farmers, carpenters, bricklayers, architects, accountants, clerks, salesmen, stenographers, housemaids and members of scores of other occupations and professions. Dividing factory work by reducing hours would not increase the nation's total purchasing power because the same amount of work would be done by more persons and, regardless of dollars paid in wages, purchasing power would likewise be divided and not increased."

Conclusions reached by the Institute are:

1. Mechanization creates more jobs than it destroys.

2. Man-hours of work being done in manufacturing today are greater than a generation ago.

3. There is a limit below which working hours cannot be reduced without serious increases in costs and prices which reduce purchasing power and lower living standards.

4. A trend toward increased employment per unit of finished product is becoming evident in major industries which have advanced farthest technologically. This is due in a large measure to a shift from emphasis upon quantity of production to quality. Machines and mass production techniques have heretofore increased output per worker, but increased size and improved quality in such products as motor cars require additional work per unit of output.

5. Although the fears of mechanization are concerned chiefly with the manufacturing industries, wage earners in these industries are less than 7 per cent of the entire population and both wage earners and salaried employees total only about 25 per cent of all gainful workers. If mechanization eliminated all factory wage earners' jobs, the workers displaced would total less than some current estimates of unemployment. Actually, however, the proportion of factory workers to total employment today is higher than in 1929. This signifies that industry despite, or because of, mechanization is creating more jobs than other occupations in which mechanization plays a less important role.

We used to call 'em safety screws, then hollow safety, then hollow hex — and now hollow set screws. But, through all these years and changes, there's one name that's stuck . . . . . "MAC-ITS."

MAC-IT screws always have been alloy steel, the same in all sizes and types—then properly heat-treated. Yes, we've called 'em lots of names, but no bad ones. MAC-ITS are old friends of ours.

Make the Mac-it test. Write for free samples.

The Strong, Carlisle & Hammond Co.
1392 West Third Street, Cleveland, Ohio

Mac-its
PRONOUNCED "MACK-ITS"

The Only COMPLETE Line of Heat-Treated, Alloy Screws

"More Goods for More People"

(Continued from page 23)

thin, poorly supported market.

Fortunately, there is evidence that even the proponents of this legislation are beginning to see that it is unworkable, and revision of the 1936 Revenue Act is likely. It is our duty to see that congressmen are better informed when that revision is under consideration than they apparently were last fall.

Increase in Tax Burden

In 1890 corporations paid 5% of their income in taxes to the national government. While some of their earnings went to stockholders, a substantial portion was set aside for the replacement of obsolete equipment and for the revamping of manufacturing facilities as new needs developed. It is from this source that we derived the remarkable expansion of American industry from 1900 until the present day, with a consequent increase in employment from 29 million to 45 million workers. The policy of taxing heavily the earnings of corporations discourages this re-investment of funds and is a powerful force tending to crystallize industrial enterprise at a capacity less than is necessary to keep abreast with the natural growth of the population.

For several years economists have raised warnings that it is impossible for nations as well as individuals to live beyond their income and not face a day of reckoning. Indications would point to the fact that the administration and general public are beginning to recognize this truth, particularly as the President recently has promised that the budget will be balanced. If that means that the administration is beginning to be just a bit uneasy about its unproductive expenditures, there is hope that some of the policies in effect during the past few years may be replaced by a more sound plan of outright co-operation with the management of industry in the production of foodstuffs and goods necessary to provide for the payment of these bills.

Rising Costs of Production

Rising labor costs, without commensurate increases in labor efficiency, likewise constitute a restriction on production. A constantly increasing proportion of the dollar received by the manufacturer is going to the payrolls of the workers. It has frequently been pointed out that labor is only one element in cost, and that a 10% increase in your payroll might mean only an increase of 2.4% in the cost of the finished product. When, however, increases in wage rates take place not only in your factory but in the plants of those who supply you, in mines, in transportation, and in factories in every field of industry, the general tendency to increase wages is reflected in everything you buy and in every element of cost; not merely in your payrolls. In 1936, 66.5% of the national income went to labor.

We are not opposed to increased wages. We believe in so improving the efficiency of industry as to increase the output per man employed, thereby making higher wages possible. We are opposed to arbitrary increases by legislative measures. Such increases are unsound—they cannot be maintained and only benefit a few at the cost of other workers not equally favored. They inevitably cause higher prices and decreased consumption.

The next session of congress will be called upon to push a bill providing for minimum wages and maximum hours of labor; these to be fixed by a national board, politically appointed. What the outcome of such legislation will be remains to be seen, but one certain result will be the further extension of administration costs, which likewise must be met by further calls upon the corporations of the country for more taxes, causing further increases in the cost of production.

I have touched only upon the most glaring restrictions that are limiting the production and distribution of goods to such a point that the shortages built up during the years of depression are far from being made up. Yet we see the beginnings of a period of dull business. How far the recession that is now under way may go no one can surely tell, but if production were based on the potential demand there need be no let-down in the production of goods in the industries where these shortages exist.

For the best interests of the country it is imperative that this present period of industrial activity continue and not be allowed to develop into a tailspin, and

(Concluded on next page)

Multiple Boring Machines

(Concluded from page 42)

provided with a separate lever control to permit individual operation, or all three tables may be started and stopped with a single lever shown to the right of the hand-wheel in Fig. 1. The individual controls are highly valuable in setting up or re-tooling any individual carrier. Furthermore, the controls are adjustable so that carriers may either be fed simultaneously or in rotation.

The machines illustrated here are equipped for dry cutting. A sump is provided in the base of the machine, however, to permit installation of a coolant system, the coolant pump being operated from one of the hydraulic control pump units. Chips drop through the machine and are ejected from the back through slides adjacent to the center unit.

Parts in process are clamped in stationary fixtures, those shown being of the manual type, although either hydraulic or air operated fixtures may be used, synchronized with the cutting cycle.

The two-way type, Fig. 2, is similar in design to the three-way model. In this type two hydraulic pumps are provided, alongside of the base, back of the machine.

Like the three-way, it is adaptable to a wide variety of multiple boring, facing and turning operations. Cutting operations may be simultaneous from both sides or alternately, as desired. The machine may be used equally advantageously for two-way machining of a single part, requiring counter-boring, for instance, or for simultaneous or alternate machining of separate parts — cutting one, while loading the other.

For continuous production, this two-way type can be equipped with a vertical or horizontal multi-station, rotary indexing fixture permitting the performance of a multiplicity of boring, turning and facing operations. It is thus adapted to the machining of such parts as differential carriers, transmission cases, cylinder bores, connecting rods, pistons, pump bodies, etc.

Spindle drive is through adjustable Vee belts. Spindles are universally adjustable and are checked for alignment with gauge blocks and an angular subplate.

For descriptive circular TD address Ex-Cell-O Corporation, 1210 Oakman Boulevard, Detroit, Michigan.

"More Goods for More People"

(Concluded from preceding page)

as at no other time Washington can prevent such a calamity by recognizing the effects of its past experiments, and by showing at least some understanding of the place that industry in this country holds in the pattern of prosperity.

As machine tool builders and as citizens of our country, we must see to it that our congressmen realize the responsibility that rests upon them in the next session which has recently been called for November 15. We must endeavor to show them that there is only one worthy goal for both business and government, and that is the production and distribution of more goods to more people. Individual initiative and private enterprise have been responsible for the progress of the country in the past, and they will provide progress for the future if permitted to function. They will not take the risks they must take, if government goes too far with restrictive legislation and oppressive taxation.

The re-establishment of a trend toward a balanced Federal Budget, the withdrawal of restrictive taxation and the abandonment of impractical attempts at national planning would be immediately reflected in stabilized business, pushing forward with confidence to the common goal we are all striving for.

• DIES
• JIGS
• FIXTURES

STAR MACHINE & TOOL CO.
9320 Woodland Ave. Cleveland, Ohio
SPECIAL MACHINES SCREW MACHINE WORK
MACHINE PARTS STAMPINGS

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Automatic Machines

(Concluded from page 19)

stock reel turns in a reel guide which is mounted directly on the end of the frame and pan. The stock reel is indexed by power through shaft and gear from spindle carrier mechanism. This eliminates torsional strain and whipping action to the spindle carrier.

The spindle carrier, which is the heart of the machine, has very large bearing surfaces which are clearly shown in the accompanying photograph. As in the 4 spindle machine, it has a 3-point support, and the unusually great length over spindle bearings affords greater rigidity under heavy forming cuts, and eliminates vibration due to whipping of bar stock. Not only are the spindles ground before assembly, but the holes for the spindle bearings are accurately finished to size and accurately spaced by a grinding operation.

To meet the requirements for extreme power in handling steel forgings, the machine is made very massive. The operator need give no thought to lubrication as there are two complete systems in the machine; one is a pump which furnishes lubricating oil through a filter to all portions of the gear section and the head stock of the machine including the bearings for forming slides; the other a pump which delivers coolant to all of the cutting tools. An indicator, mounted at the operating position, indicates clearly whether or not lubricating oil is flowing. The operation of the machine need not be interrupted for the removal of chips, as unusually large space is provided for the accumulation of chips and they can be cleaned out from the rear side of the machine without in any way disturbing the operator.

In order to reduce the time required for set-up, the machine is so designed that by the removal of a few guards all cams are quickly accessible, and the space for the setting of tools is entirely free from obstructions.

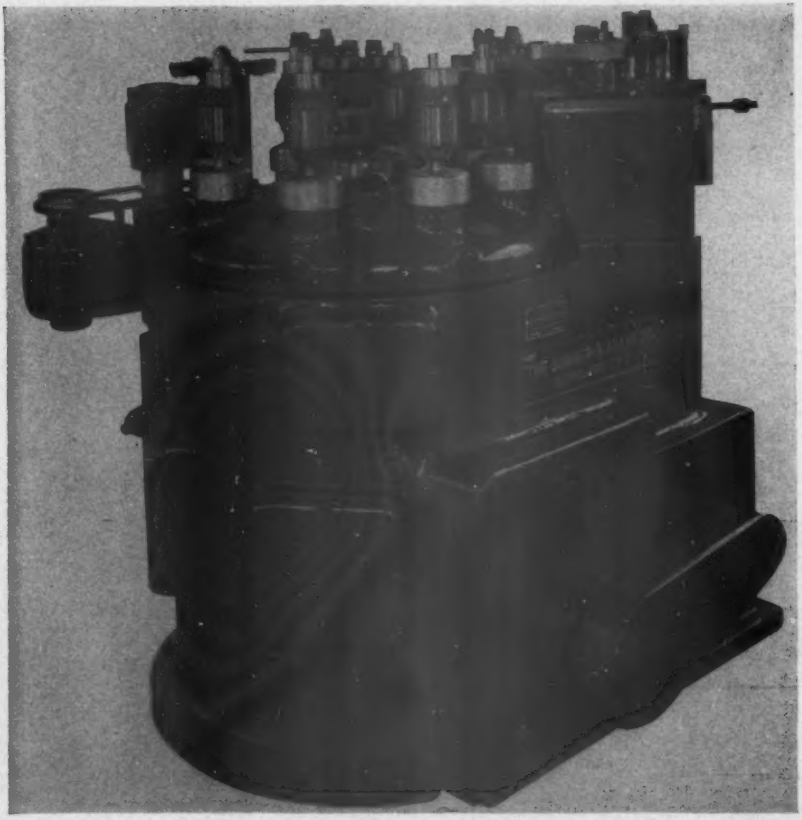
Gridley Automatic Chucking Machines are an entirely new design. The new RPL—both 4 and 6 spindle types—is sturdy, compact and convenient, intended for heavy duty and presents a high standard of accuracy.

The machine has a capacity for 8" swing and as work of this size is often heavy, loading is done in the upper front position and the pan is arranged so that the operator can stand very close to the machine, putting this piece into the chuck with his right hand, without reaching away from his body, thus avoiding fatigue and strain. The center line of the spindle at the loading position is actually only 44" above the floor.

A 4-way lever mounted near his left hand permits control of the electric chuck so that while he holds the piece in the chuck with one hand, he can with the lever close or open the chuck jaws at will. Electric chucking has the advantage of doing away with the necessity for air lines or hydraulic chucking mechanism, and replaces them with a simple torque motor especially designed for this service and built into the machine. Variations in the diameter of the piece chucked do not affect the force with which it is gripped, as the motor simply travels a few more revolutions to compensate for errors in diameter. After the piece is chucked, the operator, by using another lever, (also mounted conveniently at his left hand) can rotate the spindle independently of the main drive, and make sure that the piece he has just chucked is not running out. It is possible to rechuck and reset the piece in a moment so that it runs true.

While the operator is chucking this piece, the tools are at work on the other spindles and at the end of the cycle the tools withdraw and the feed then is interrupted until the operator pulls a starting lever conveniently mounted in the operating position. When the starting lever is pulled, the spindle which has just been loaded is automatically engaged by the main drive motor and the spindle carrier indexes into the next operating position.

Since a great deal of the work that is handled by machines of this type will be cast iron, the massive slides are mounted vertically so that the chips and dust will not lodge on the guides. Each slide rests on hardened and ground alloy steel plates, a taper gib being provided for quick tape-up of wear. Adjustment on the slide is provided for quenching position of tool in three directions, thus permitting rapid, accurate adjustment. In order to simplify the mechanism the cross slide cams and rollers are mounted directly below the slide, thus eliminating a large number of levers, pins and studs. The entire tooling space of the machine is unusually open and accessible in every way.



Another Type of S & A AUTOMATIC POLISHING MACHINE

This 8-spindle indexing type automatic polishing machine finishes up to 1200 armature commutators per hour.
Its 5 stations are—

1. Load
2. Wire Brush
3. Rough polish of commutator
4. Finish polish of commutator
5. Finish polish of shaft end

THE PRINCIPLE OF OPERATION

Pieces are automatically chucked, then indexed to various stations where polishing heads automatically slide into position. When an armature is in polishing position the head advances and two formed jaws close about the commutator for polishing. One of these jaws carries reeled sand paper, opposite which are 2 rolls driven with a feeding ratchet. The entire process is automatic and assures a considerably higher rate of production than is possible with other methods.

This machine is adaptable to other products.

May we send you particulars?

Other product cost reducers we build are Automatic Machines for continuous milling and drilling.

The SOMMER & ADAMS Company

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Representatives

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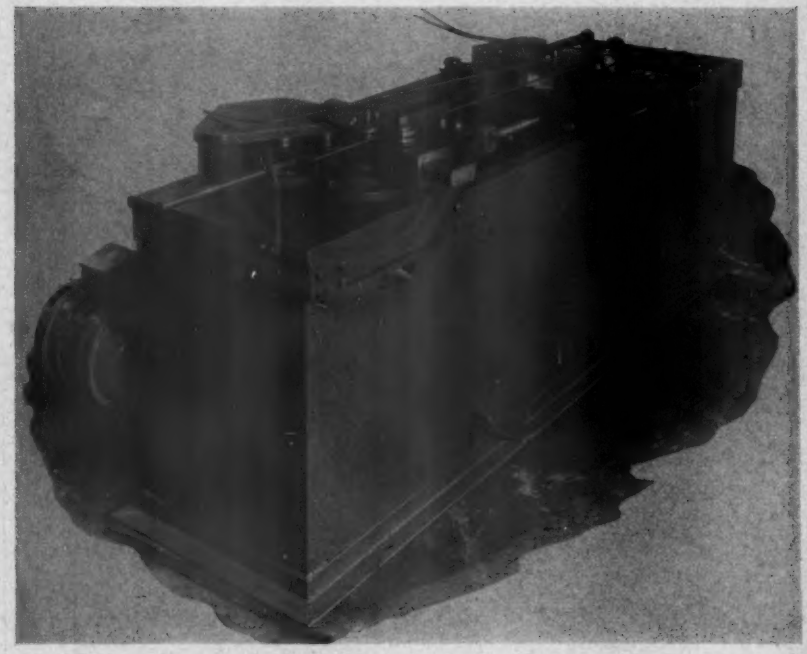

ARE YOUR *Bending Costs* TOO HIGH?

We developed this Form Bending Machine upon special order from one of the principal manufacturers of automobile seats.

It has substantially stepped up the volume of form bending required for manufacturing seat frames.

The machine is so designed and constructed that adjustment for different radii of "bends" and their various center distances is simple.

Machine speed is 60 strokes per minute.

The efficiency of this McKinney Form Bending Machine is evident from every angle. Years of experience have perfected McKinney design and time-saving features. All McKinney machines are compact and sturdy of construction. They are economical to operate. They assure the lowest ultimate product cost.

The McKinney line includes:

Roller Die Forming Machines—Automatic Saw and Shear Cut-off Machines—Metal Bending Machines—Sheet Metal Fabricating Machines for all purposes—Specially designed Dies, Jigs, Fixtures and Machines for all Industries.

THE McKINNEY TOOL & MFG. COMPANY

1688 ARABELLA ROAD • CLEVELAND, OHIO

Representatives:

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